Microservices with gRPC

Luka Obradovic • 07.06.2017

Overview

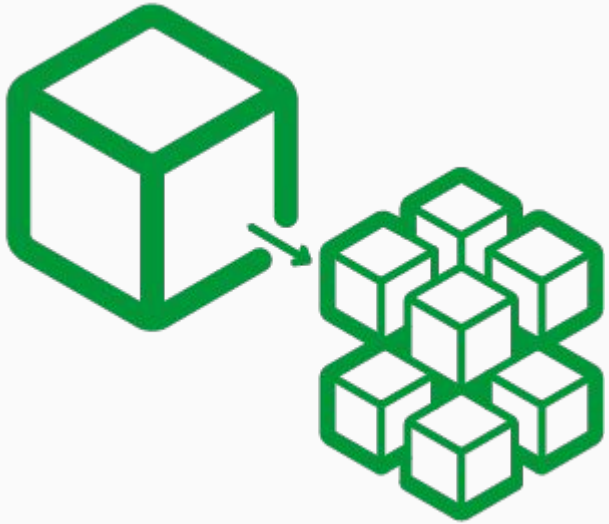
- **Motivation** - Microservices
- **RPC**
- **Protobuf**
- **gRPC**
- **Demo**

What is gRPC ?

A high performance, open-source, universal RPC framework that relies on Protocol Buffers

Motivation - Microservices

- main() => classes => libraries



Motivation - Microservices

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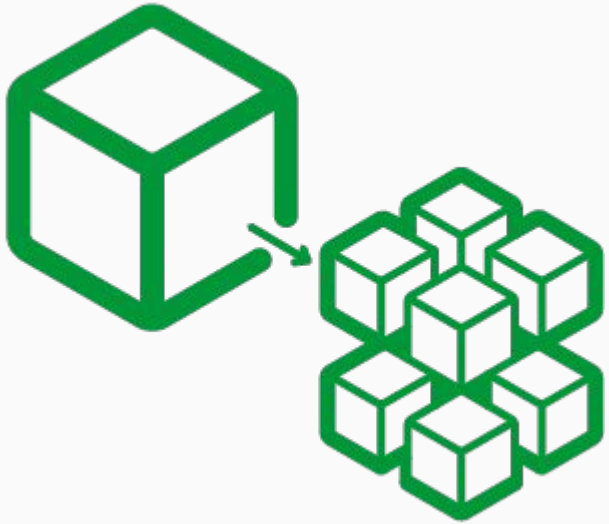
- Easier to maintain



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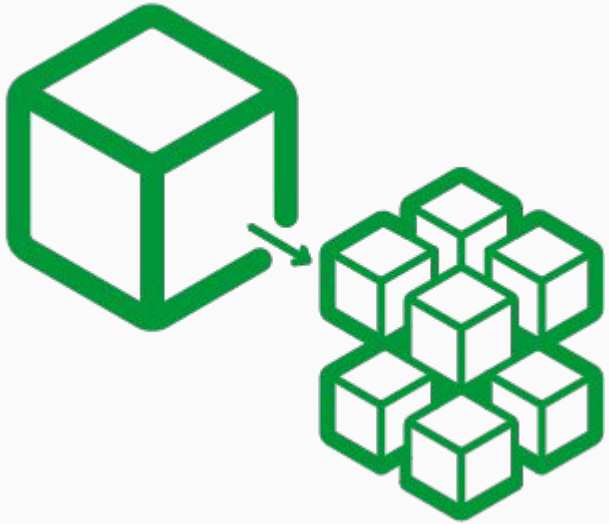
- main() => classes => libraries
- Easier to maintain
- Easier to deploy



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- Strictly typed
- Can use other protocols

Protobuf

- Serialising mechanism

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- Serialising mechanism
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- Backwards-compatibility
- Less Boilerplate Code

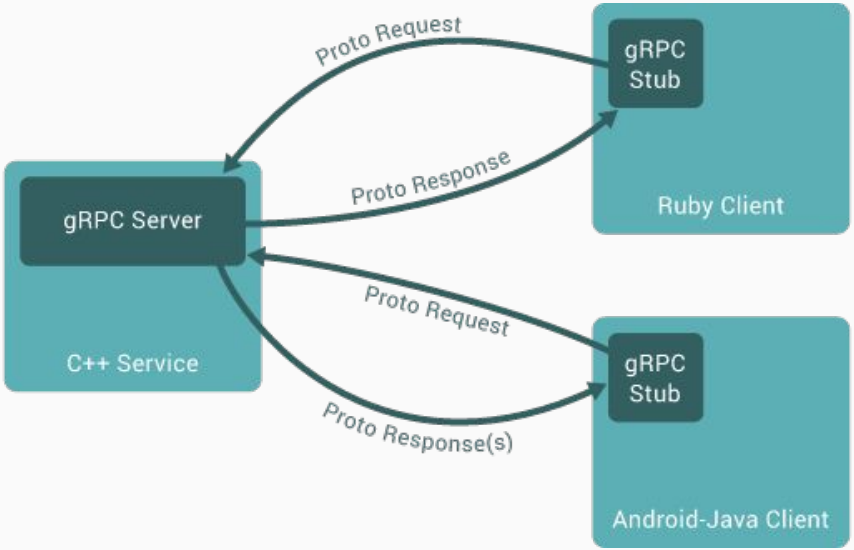
Protobuf [example]

```
message Person {
  string name = 1;
  string family_name = 2;
  int32 id = 3;

  enum Sex {
     MALE = 0;
     FEMALE = 1;
  }

  Sex sex = 4;
}
```

```
final Person person =
    Person
        .newBuilder()
        .setId(12345)
        .setName("John")
        .setFamilyName("Doe")
        .setSex(Person.Sex.MALE)
        .build();

person.writeTo(new FileOutputStream(args[0]));
```

gRPC

- Protobuf to describe the service (IDL)



gRPC

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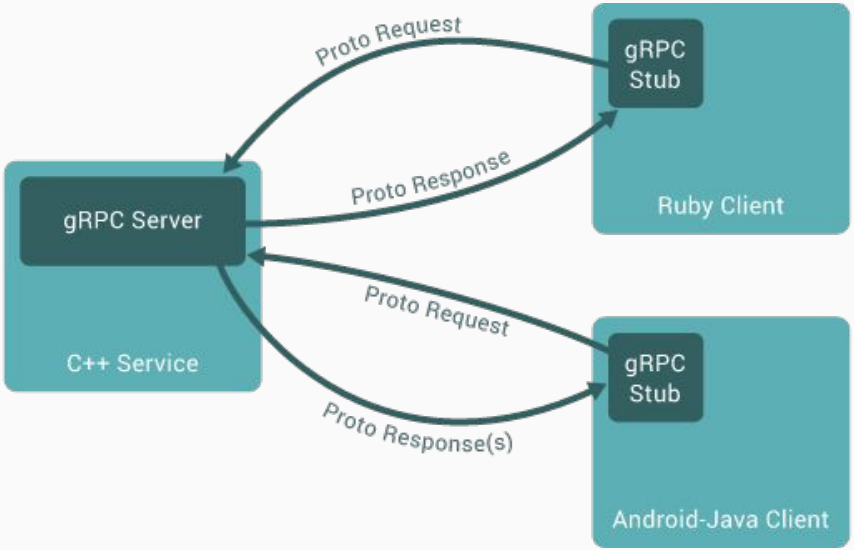
- Protobuf for messaging



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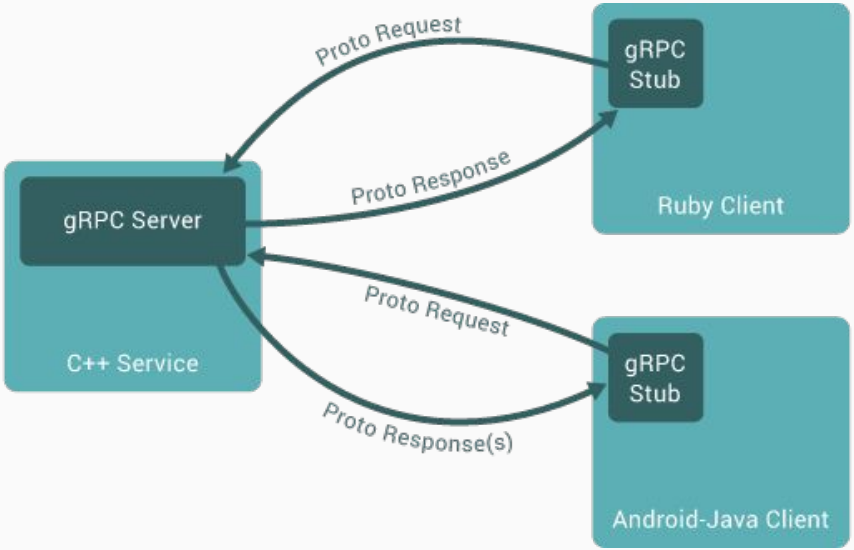

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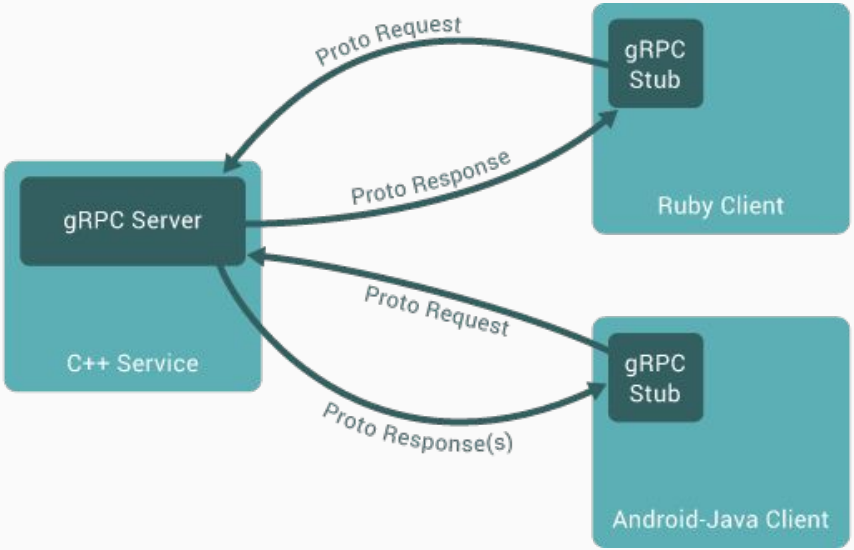
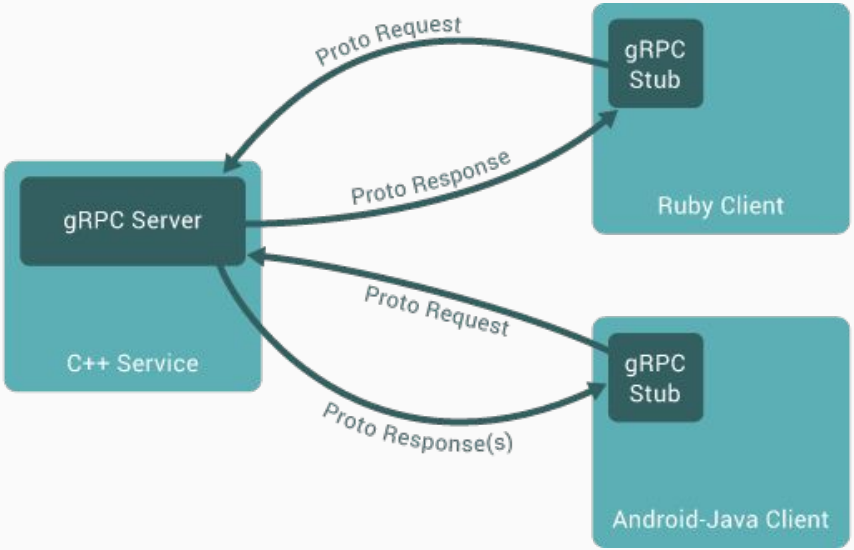


gRPC

- Protobuf to describe the service (IDL)
- Protobuf for messaging
- Generated server and client code
- HTTP/2
- Bi-directional streaming



gRPC [example]

```
service Calculator {
   rpc Add (AddRequest) returns (AddResponse) {

   }
}

message AddRequest {
   int32 x = 1;
   int32 y = 2;
}

message AddResponse {
   int32 z = 1;
}
```

Demo