



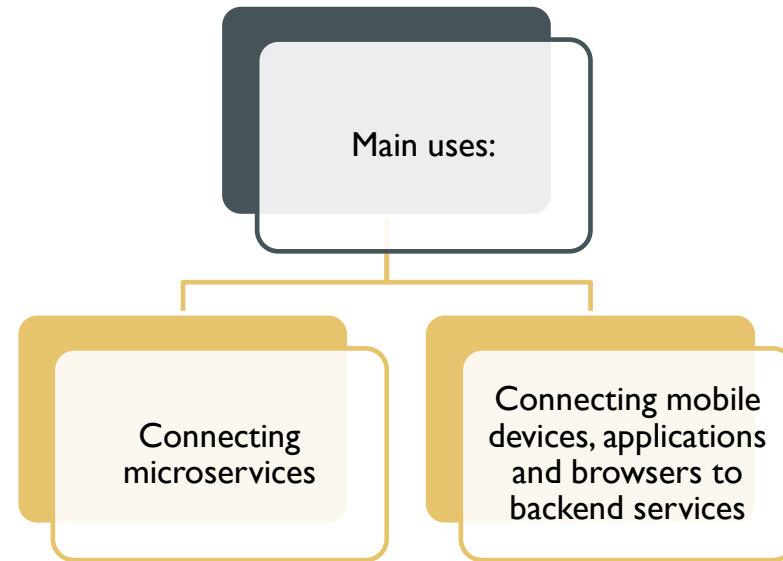
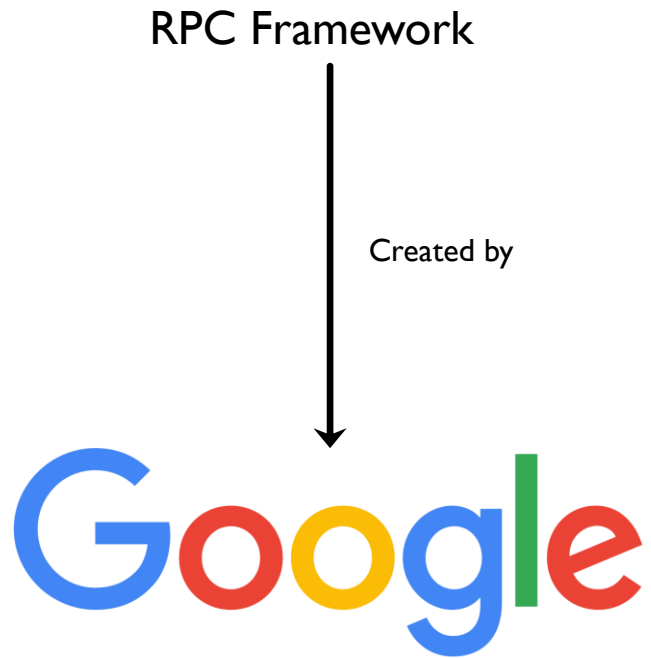
MARE , DANIEL ADRIÁN - UO264608

PÉREZ MANSO, ADRIÁN - UO265081

RODRÍGUEZ HUERTA, MIGUEL - UO258629

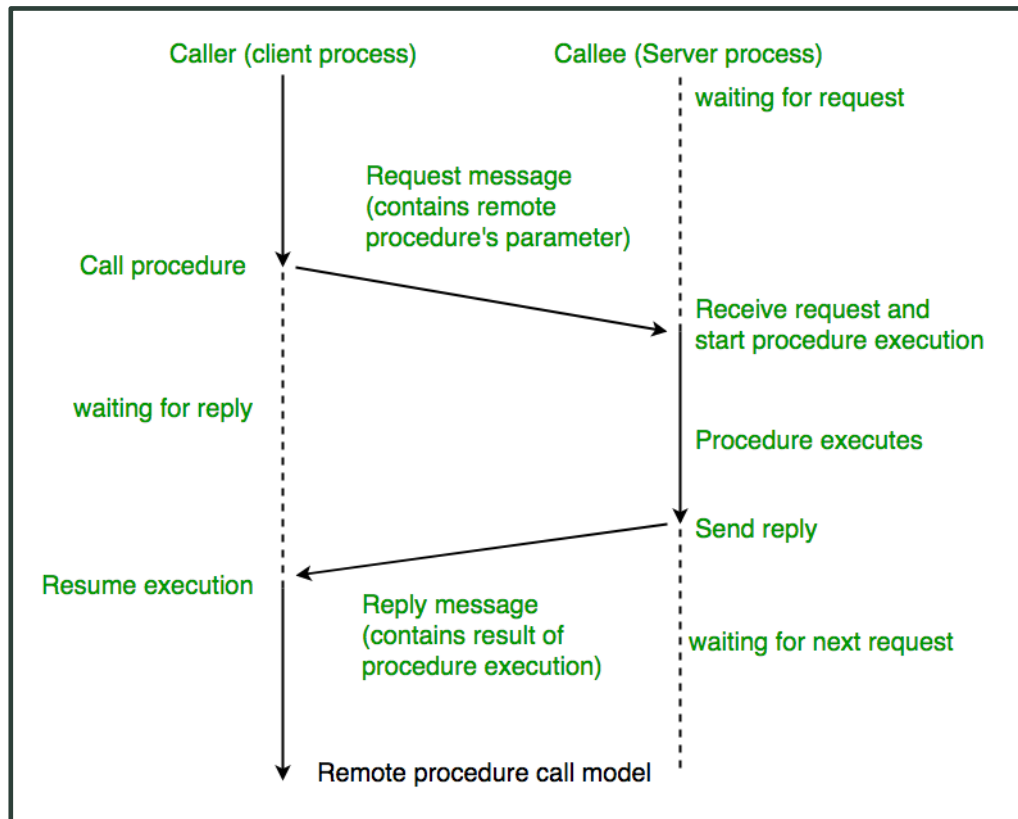
RUIZ MARTÍNEZ, VIOLETA - UO258454

WHAT IS GRPC?



And supports a good bunch of programming languages!

BUT... WHAT'S RPC?



RPC=Remote Procedure Calling

It's a protocol that uses the client-server model

Allows programs to call procedures located in a different machine in a transparent way

TL; DR



**NOOOOOOOO!!! YOU CAN'T
JUST CALL PROCEDURES
FROM MACHINES LOCATED
IN OTHER NETWORKS AS IF
THEY WERE LOCAL,
NOOOOOOOO!!!**



haha RPC go brrrrrr



STAKEHOLDERS

Google(created gRPC in 2015)

gRPC organization(dev team)

Open-source community

Used by



STAKEHOLDERS – MOST IMPORTANT CONTRIBUTORS

Craig Tiller
ctiller

Follow

@google
craig.tiller@gmail.com
<https://twitter.com/invalidop>

★ PRO

Block or report user

Organizations

GRPC

Muxi Yan
muxi

Follow

Google
Sunnyvale, CA, USA

Block or report user

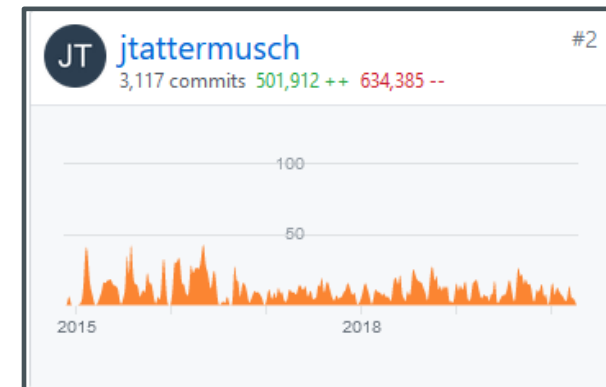
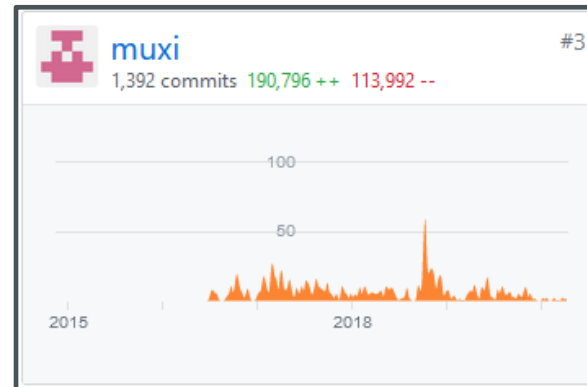
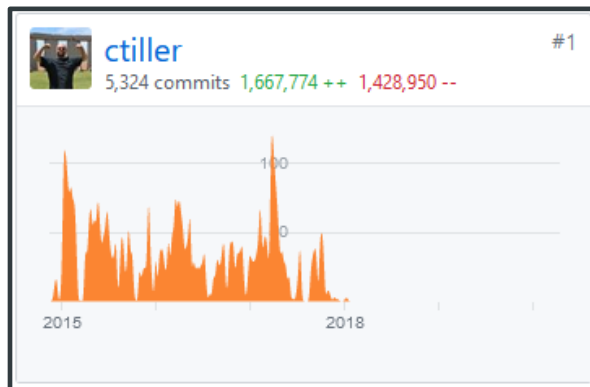
Organizations

Programmatic
GRPC

Jan Tattermusch
jtattermusch

Follow

Google
Mountain View, CA





STAKEHOLDERS – LESS IMPORTANT CONTRIBUTORS

You could also be a contributor of this project but you have to follow some rules first to implement changes and should try to follow some guidelines as the [RFC proposals](#).

As a sum up of the link:

1. Before doing a speculative change in the grpc project you have to make a RFC proposal.
2. Then a member of the gRPC team will be assigned to you as an approver to help you fulfill the pull request.

 **bigfacebear** #95
11 commits 1,165 ++ 454 --

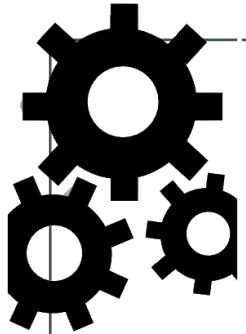
 **zpencer** #96
10 commits 550 ++ 263 --

PROTOCOL BUFFERS



```
service HelloService {  
  rpc SayHello (HelloRequest) returns (HelloResponse);  
}  
  
message HelloRequest {  
  string greeting = 1;  
}  
  
message HelloResponse {  
  string reply = 1;  
}
```

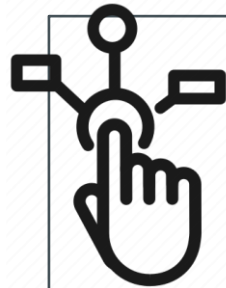

QUALITY ATTRIBUTES



Interoperability

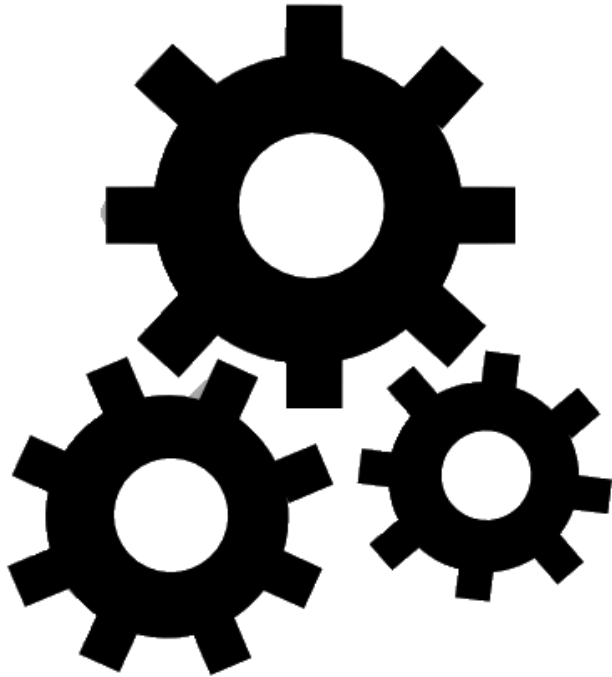


Responsiveness
& Performance



Usability

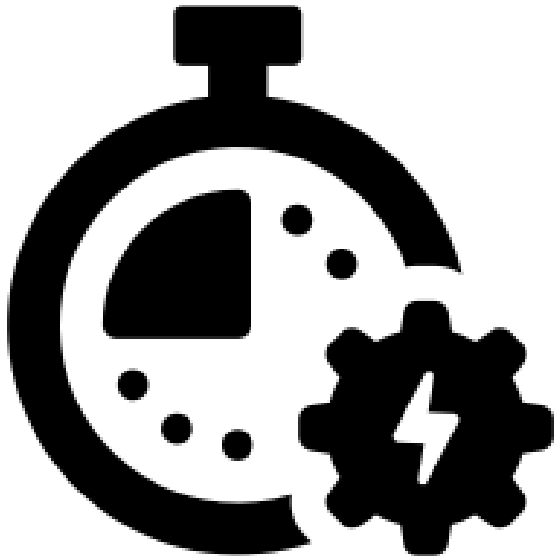
QUALITY ATTRIBUTES - INTEROPERABILITY



Multilanguage

Protocol Buffers
are language-
agnostic

QUALITY ATTRIBUTES - RESPONSIVENESS & PERFORMANCE



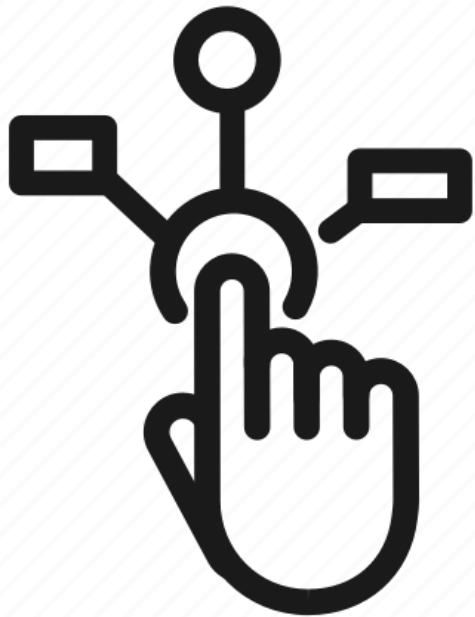
```
{  
  "age": 35,  
  "first_name": "Stephane",  
  "last_name": "Maarek"  
}
```

55 bytes

```
message Person {  
  int32 age = 1;  
  string first_name = 2;  
  string last_name = 3;  
}
```

20 bytes

QUALITY ATTRIBUTES - USABILITY



Easy to install

Error, cancellation
and deadline
propagation

Pluggable

CONSTRAINTS

HTTP / 2

Unexisting
URL end
points

DEVELOPMENT ASPECTS

Becoming a contributor

Two organizations: gRPC and gRPC ecosystem

Becoming a maintainer/commmitter

The diagram illustrates the relationship between two GitHub organizations. A large black bracket on the left groups the two profiles. The top profile is for the 'gRPC Ecosystem' organization, which describes itself as a complement to gRPC and lists 15 repositories. The bottom profile is for the 'grpc' organization, described as a high-performance RPC framework, with 20 repositories and a 'Verified' status.

Organization	Description	Repositories	Packages	People	Projects
gRPC Ecosystem	gRPC Ecosystem that complements gRPC http://www.grpc.io grpc-io@googlegroups.com	15		5	
grpc	A high performance, open source, general-purpose RPC framework https://grpc.io Verified	20		36	

DEVELOPMENT ASPECTS (II)

New releases scheduled
every six weeks

Common Vulnerabilities and
Exposure process

Release	Scheduled Branch Cut	Scheduled Release Date
v1.17.0	Nov 19, 2018	Dec 4, 2018
v1.18.0	Jan 2, 2019	Jan 15, 2019
v1.19.0	Feb 12, 2019	Feb 26, 2019
v1.20.0	Mar 26, 2019	Apr 9, 2019
v1.21.0	May 7, 2019	May 21, 2019
v1.22.0	Jun 18, 2019	Jul 2, 2019
v1.23.0	Jul 30, 2019	Aug 13, 2019
v1.24.0	Sept 10, 2019	Sept 24, 2019

MODULES AND COMPONENTS

Every implementation
has its own modules
organization

Node
implementation

```
graph TD; A[Every implementation has its own modules organization] --- B[Node implementation]; B --> C[Table of modules];
```

📁 grpc-health-check	Export health-check messages	5 days ago
📁 grpc-js	Merge pull request #1356 from murgatroid99/grpc-js_proxy_support_take_2	3 days ago
📁 grpc-native-core	Use make from homebrew in Mac tests	22 days ago
📁 grpc-tools	Update grpc-tools to v1.8.1	3 months ago
📁 proto-loader	Bump proto-loader to 0.5.4	18 days ago

MODULES AND COMPONENTS (II)

Main gRPC
implementation

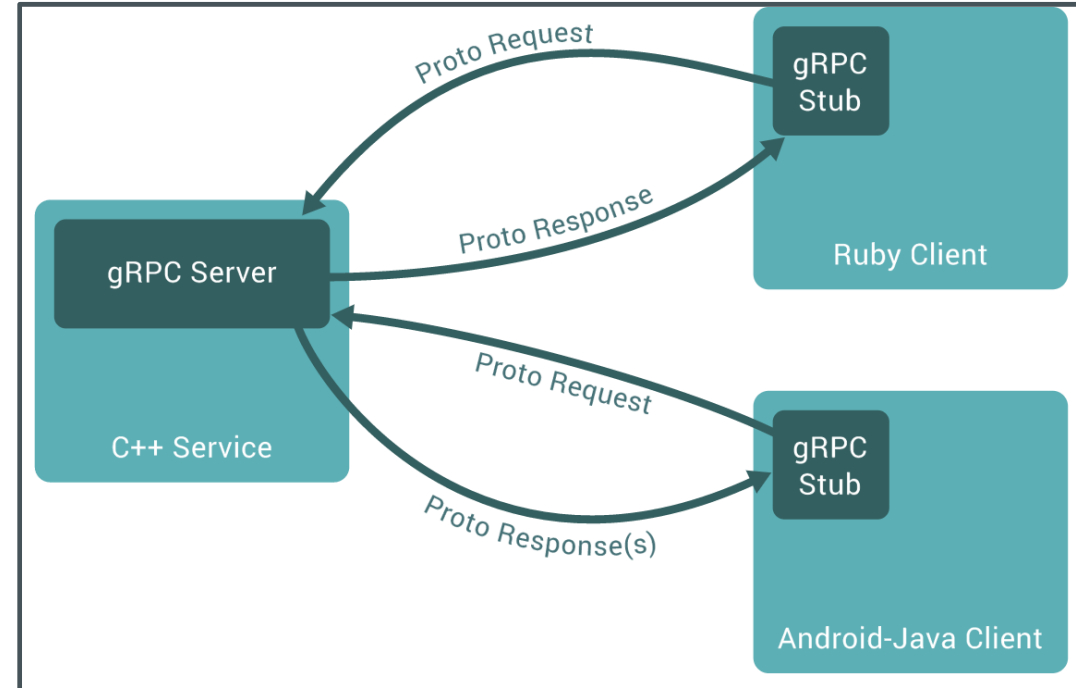


	abseil-cpp	Update abseil to lts_2020_02_25	2 months ago
	android/test/interop	Add abseil	3 months ago
	benchmark	More pythons to be formatted	3 months ago
	boringssl	regenerate projects	3 months ago
	c-ares	More pythons to be formatted	3 months ago
	compiler	Remove all std::mem_fn and std::bind from service definitions and setup	22 days ago
	core	Merge pull request #22675 from markdroth/xds_default_route	3 hours ago
	cpp	Register CQ at the right place	24 days ago
	csharp	Merge pull request #22434 from sayedihashimi/sayedha/targeterror02	20 days ago
	objective-c	Merge pull request #22423 from muxi/objc-poller	21 hours ago
	php	add an instruction of setting a flag before c-core make, after #22416 ...	9 days ago
	proto	fix use-after-free bug	2 months ago
	python	Merge pull request #22662 from lidizheng/aio-reflection	2 hours ago
	ruby	Revert "Append old ca.pem"	27 days ago
	upb	yapf code	2 months ago
	zlib	More pythons to be formatted	3 months ago

ARCHITECTURE AND REPOSITORIES

Layered design to enable extension eg. authentication, load balancing, logging and monitoring etc.

The gRPC is commonly used to implement microservices.



ARCHITECTURE AND REPOSITORIES (II)

Main repository of gRPC

The C based gRPC (C++, Python, Ruby, Objective-C, PHP, C#) <https://grpc.io>

44,169 commits 74 branches 0 packages 183 releases 525 contributors Apache-2.0

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

lilizheng Merge pull request #22662 from lilizheng/aio-reflection Latest commit b6a7d55 10 hours ago

.github	Pass repo manager duty to nicolasnoble.	22 days ago
bazel	Merge remote-tracking branch 'origin/master' into peers_method	last month
cmake	Revert "Revert "Reintroduce #21527 (boringsl submodule unification)""	3 months ago
doc	Improve the documentation for serializer and deserializer	yesterday
etc	Monthly update of root pem	4 months ago
examples	Merge pull request #22636 from chalin/patch-4	2 days ago
include	xds: Remove fallback code and support for old xds LB configs.	3 days ago
src	Merge pull request #22662 from lilizheng/aio-reflection	10 hours ago
summerofcode	Update .cc and .md files	15 months ago
templates	Merge pull request #22561 from gnossen/python35_test	8 days ago
test	Merge pull request #22675 from markdroth/xds_default_route	12 hours ago
third_party	Revert changes to abseil-cpp	10 days ago
tools	Merge branch 'master' into xds_reuse_resources	yesterday

Language	Source
Shared C [core library]	src/core
C++	src/cpp
Ruby	src/ruby
Python	src/python
PHP	src/php
C# (core library based)	src/csharp
Objective-C	src/objective-c

Language	Source repo
Java	grpc-java
Kotlin	grpc-kotlin
Go	grpc-go
NodeJS	grpc-node
WebJS	grpc-web
Dart	grpc-dart
.NET (pure C# impl.)	grpc-dotnet


ARCHITECTURE AND REPOSITORIES (III)

Experimental gRPC repository for Node.js

gRPC for Node.js <https://grpc.io>

🔗 2,865 commits 🌿 36 branches 📦 0 packages 🏷️ 79 releases 👤 112 contributors 📄 Apache-2.0

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

 murgatroid99 Merge pull request #1351 from doochik/export-health-check-messages ... ✗ Latest commit 37d4acd 5 hours ago

📁 .github	Create lock.yml	2 years ago
📁 doc	CR comment fix	5 months ago
📁 packages	Merge pull request #1351 from doochik/export-health-check-messages	5 hours ago
📁 templates	Add fan-out configs and scripts for windows and linux	2 months ago
📁 test	Remove debug logs	7 days ago
📁 tools/release	Merge pull request #1255 from grpc/nicolasnoble-patch-3	2 months ago

PROS AND CONS

Pros

Free and Open
Source

Good
compatibility
with other
Google
services

Good for high-
performance
communicatio
n between
services

Supports a
wide range of
programming
languages

Can be
implemented
alongside a
REST API

Cons

Not really
good with
data-related
operations
(CRUDs)

No standard
for RPC
implementatio
ns = bad for
devs

USEFUL LINKS

[gRPC main page](#)

[gRPC concepts](#)

[gRPC tutorials](#)

[GitHub](#)