



Connect from Browsers using gRPC-Web

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What is gRPC?

gRPC **R**emote **P**rocedure **C**alls.

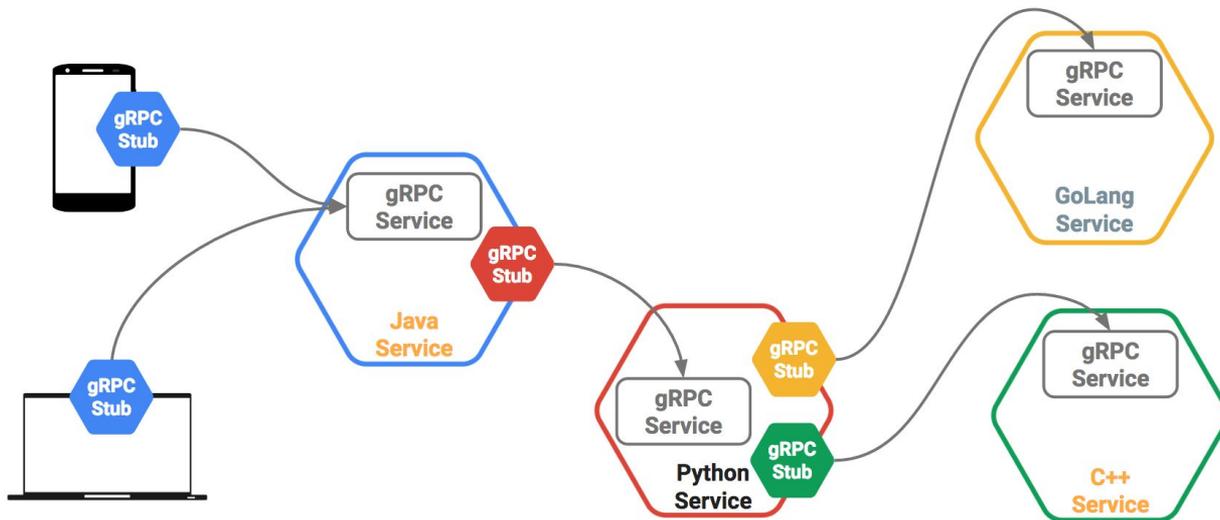
It is a high performance, open source, general purpose, standards-based, feature-rich RPC framework.



gRPC Speaks Your Language

Service definitions and client libraries

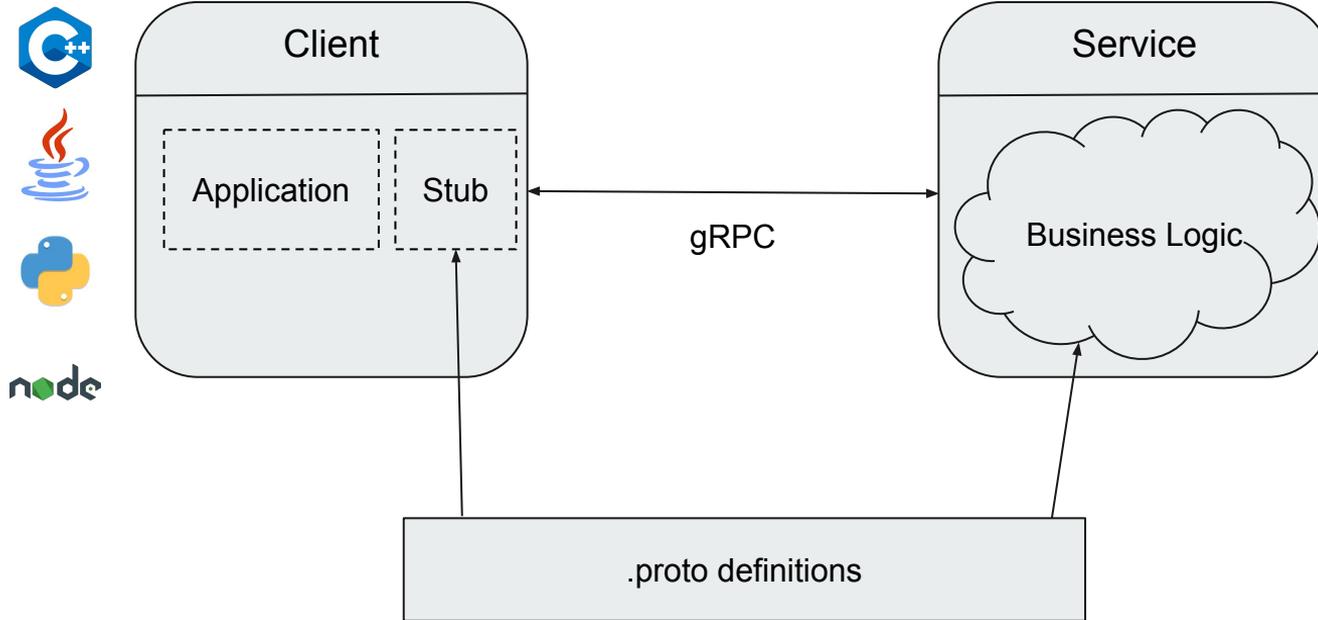
- Java
- Go
- C/C++
- C#
- Node.js
- PHP
- Ruby
- Python
- Objective-C



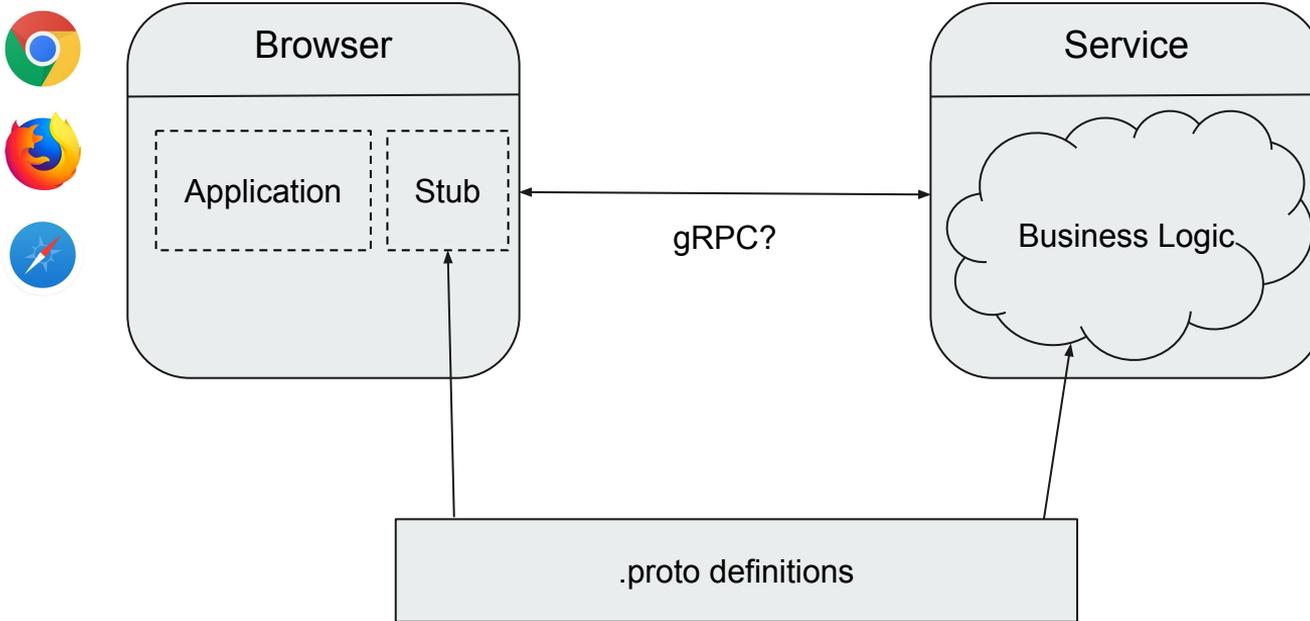
More Languages...

- Swift
- Haskell
- Rust
-

gRPC Basics



gRPC-Web



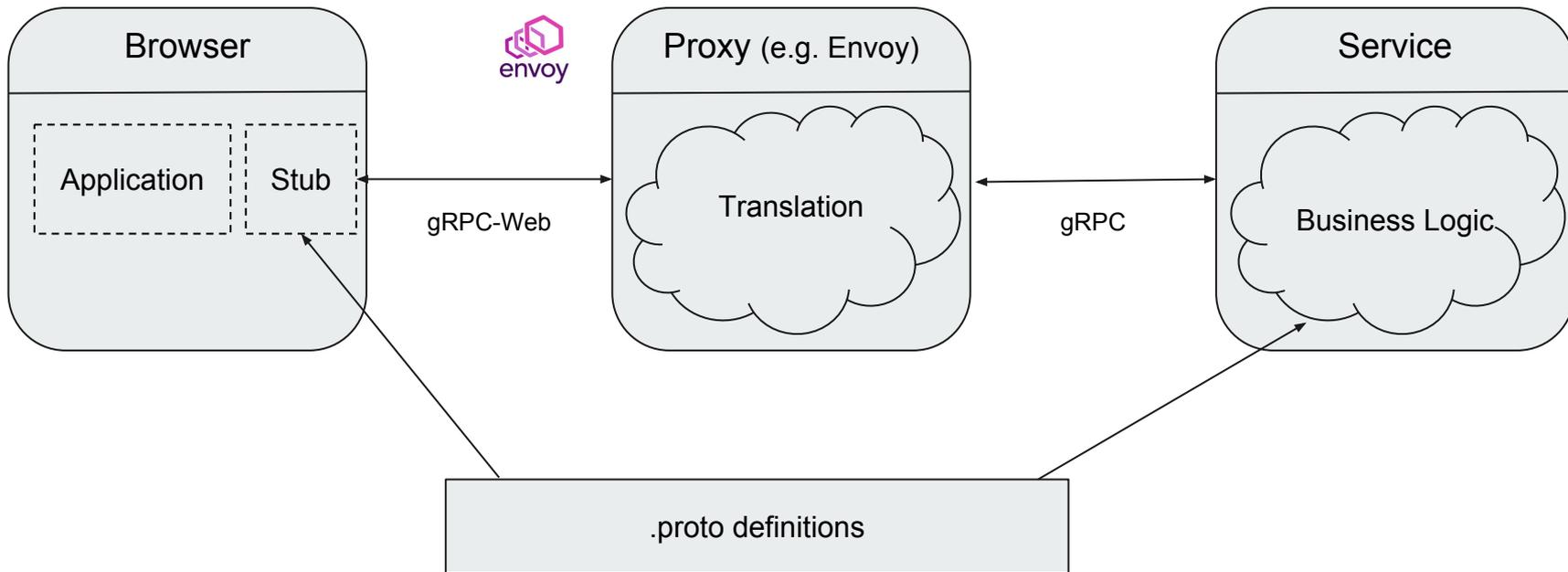
Not so Fast!

- Standard Web APIs (XHR, Fetch) don't expose HTTP wire-transport details
- Web clients prefers text data: security, JSON compatible encoding, streaming
- Response trailers are not supported
- Web-specific features: CORS, security (XSRF/CSP), etc
- Firewall, corporate proxies, etc

gRPC-Web Spec

- gRPC-Web is an auxiliary protocol providing a translation layer between browser requests and gRPC
- Currently, the spec is implemented in Envoy. More to come
- Over HTTP/*, as negotiated by browsers (against proxies)
- Content-Type: application/grpc-web[-text][+proto]
- Trailers encoded into the response stream
- Current limitations: unary calls and server streaming only

gRPC-Web



gRPC-Web

- GA Since Oct 2018
- Website, Examples: grpc.io
- Spec: github.com/grpc/grpc-web
- Used internally in Google / Alphabet for over 2 years
- Cross-browser compatibility, supported by Google Closure library
- Client library: `npm install grpc-web`
- Experimental TypeScript support

Future

- In-process connect support (e.g. Node, Java, Go)
- Interceptors
- Integrations into frameworks like Angular, React, etc
- Contributions welcome!

More In-depth Session

- Dec 12th Wed 2:35pm 2 A/B