

How Sendo.vn build a scalable architecture to grow 10X every year

Dec 18, Sendo

Agenda

01

Introduction

- Sendo's Milestones
- Now & Next

02

Principles of scaling

- The art of design: decoupling & simply
- Build strong teams focus on specific domain
- Organize people around products, not projects

03

Stack of technologies

- Languages: C#, Golang, Node js, PHP, Erlang
- Databases: MongoDB, Redis, ElasticSearch, MySQL, Hadoop
- Others: Reactjs, Flutter, Sendo Golang SDK, Sendo Web SDK

04

Monitoring & Communication system

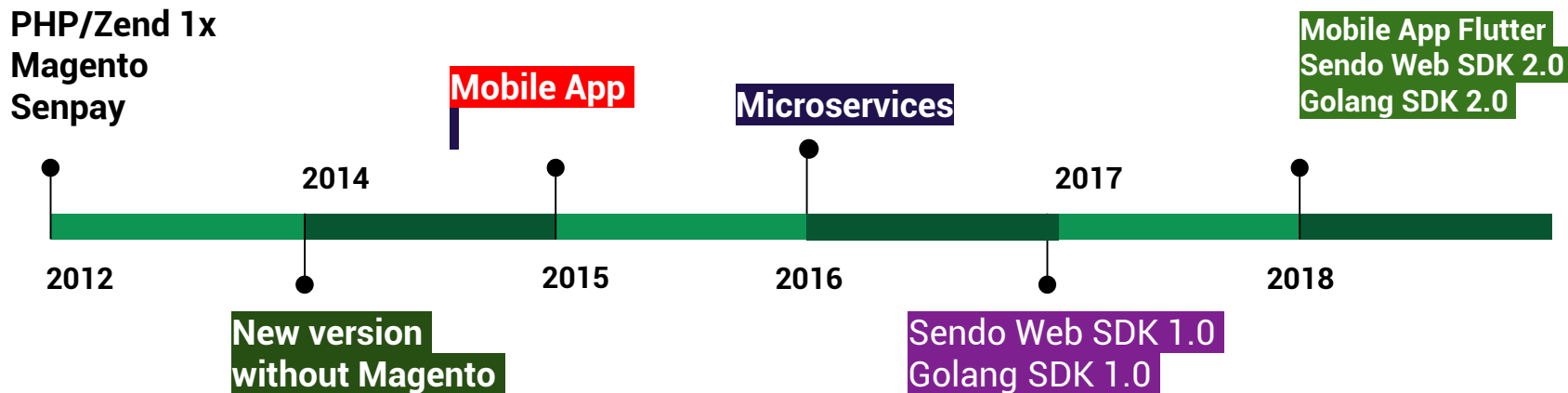
- Microservices
- GRPC
- Pub/Sub

05

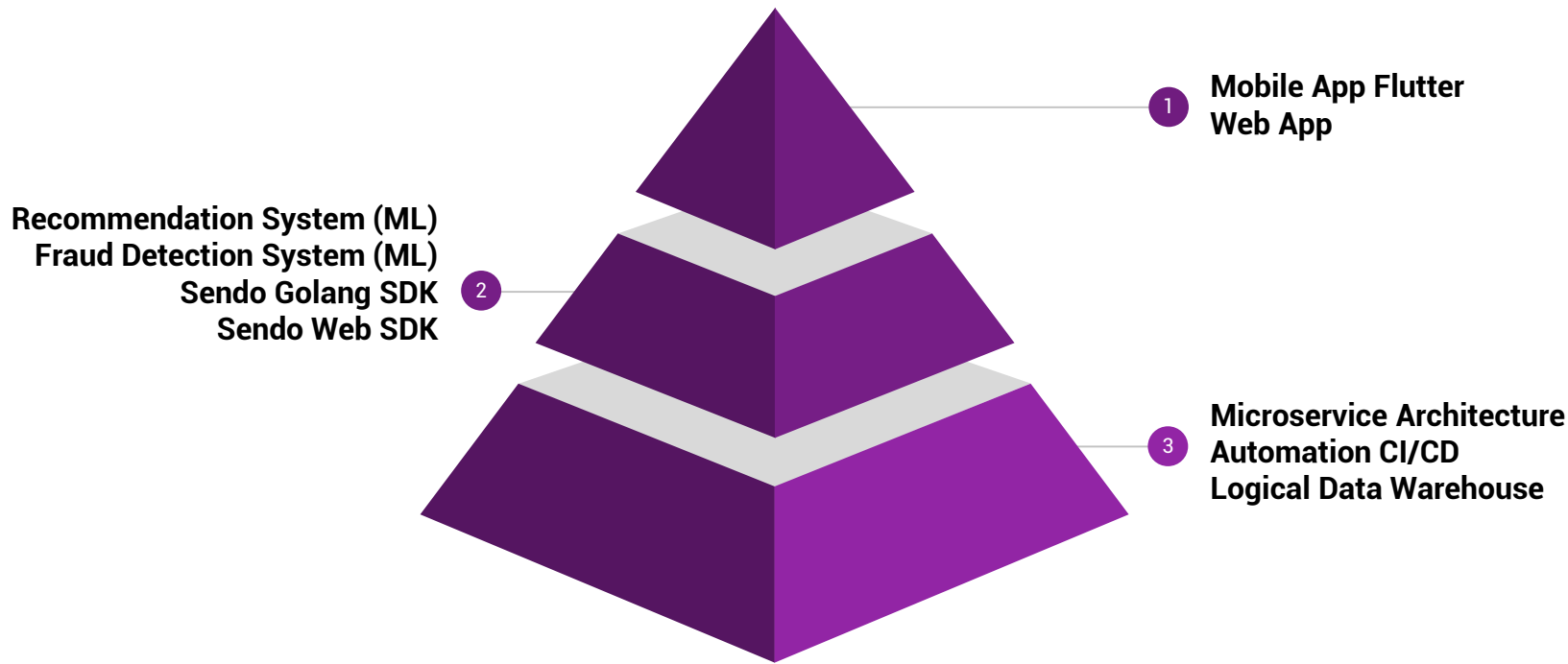
Best practices

- Improve JSON encode/decode
- In-App caching
- Safety Migration

Introduction / Sendo's milestones



Introduction / Now & Next



Principles

Simplify design philosophy

Decouple application architecture

Build strong teams focus on specific domain

Organize people around products, not projects

Stack of Technologies

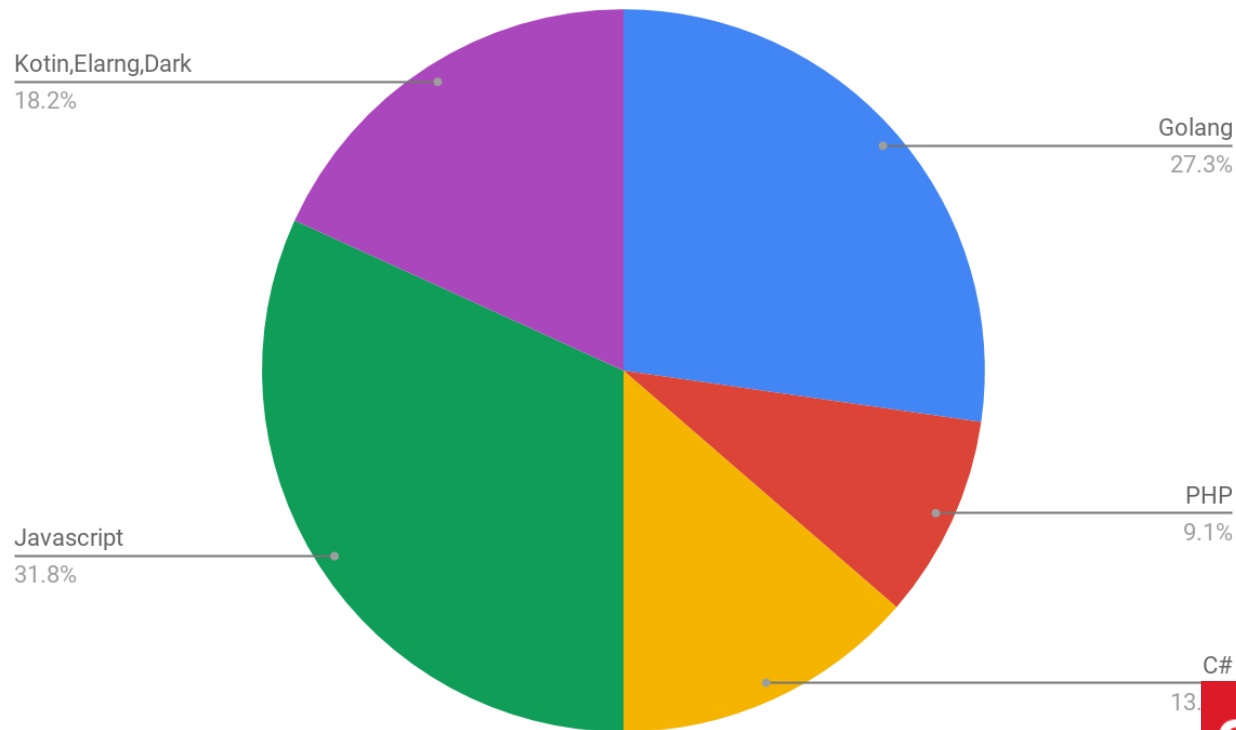
Languages: Golang, PHP, Nodejs, C#

Databases: MongoDB, Redis, ElasticSearch, MySQL

UI: Reactjs, Kotlin, Swift, Flutter

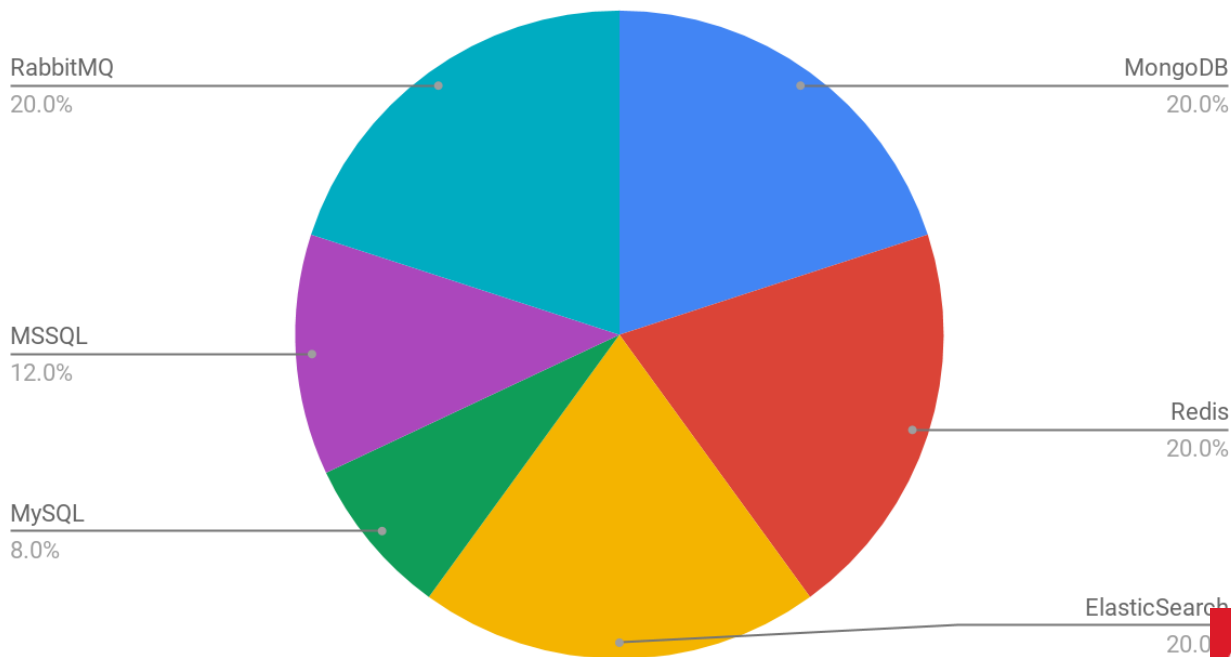
Sendo Golang SDK, Sendo Web SDK

Stack of Technologies | Languages



Stack of Technologies | Databases

Points scored



Stack of Technologies | UI Framework

Reactjs for Web

Flutter for App

Stack of Technologies | Reactjs

Sharing common knowledges/tools/processes

Sharing developer resources

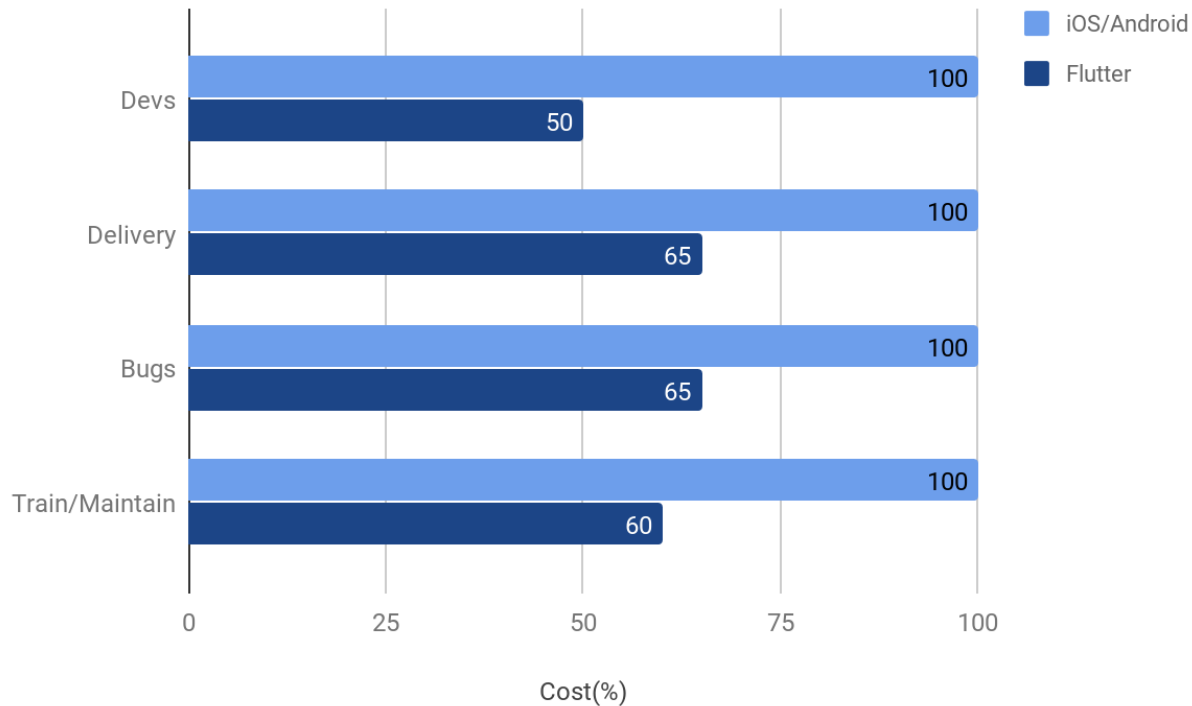
Decoupling Web App Logic Design

Narrowing the gap between Web and Native Mobile

Key results:

- FE Developers x4(2017-2018)
- Production Bugs: reduce 93% (2/2018-11/2018)

Stack of Technologies | Flutter

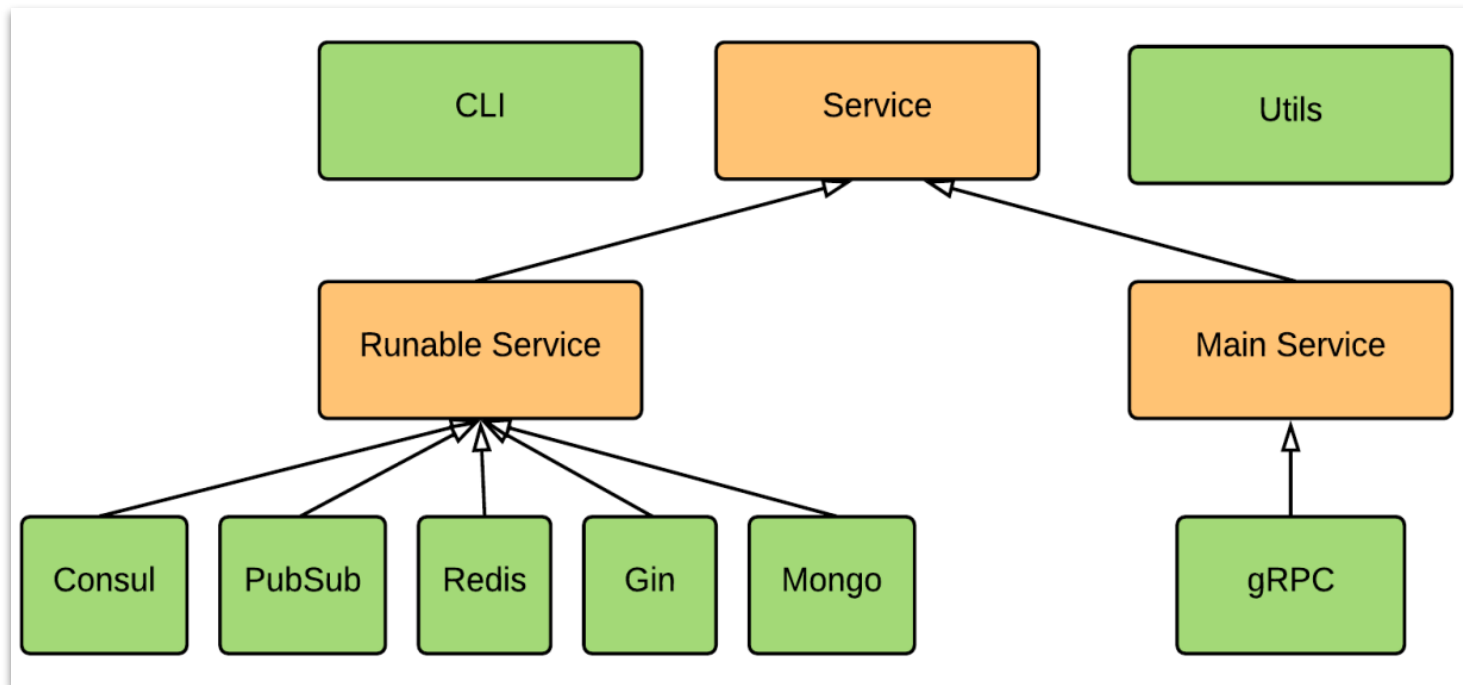


Stack of Technologies | Sendo SDK

Sendo
Golang SDK

Sendo
Web SDK

Stack of Technologies | Sendo Golang Architecture



Stack of Technologies | Sendo Golang SDK

Patterns, Structures,
Conventions

Validations/Sanitize/Helpers

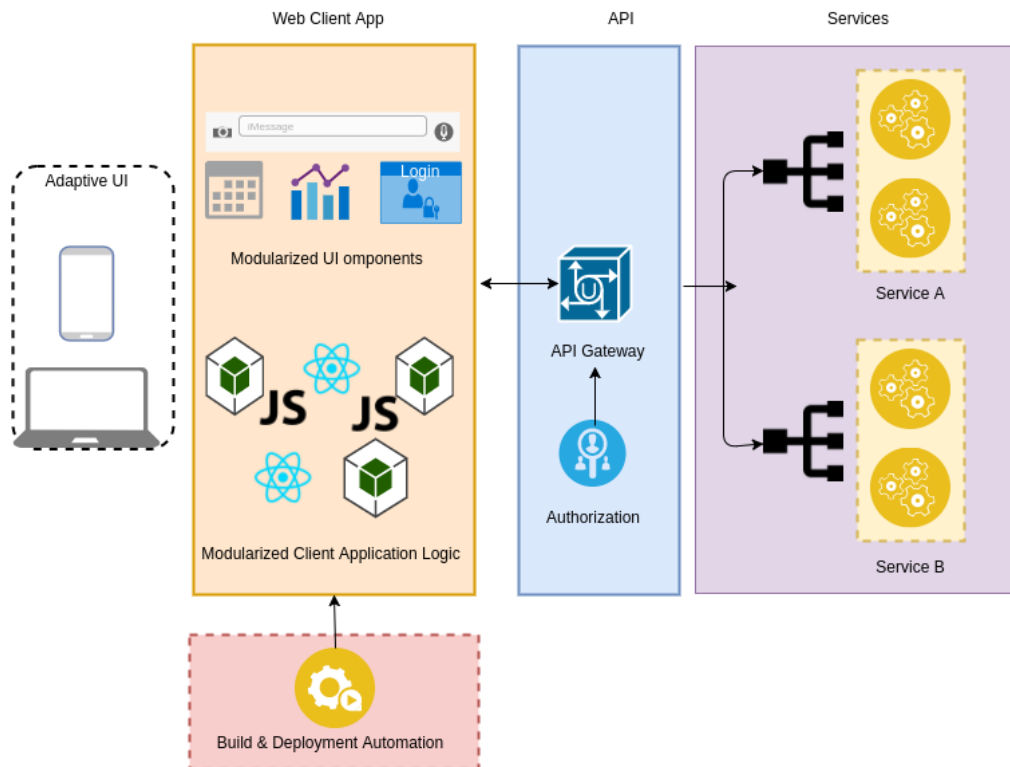
Logging/Monitoring

Preventing Regression

Key results:

- Reduce ▼ 15% the cost for development and testing
- Reduce ▼ 50% the bugs about XSS, SQL

Stack of Technologies | Sendo Web Architecture



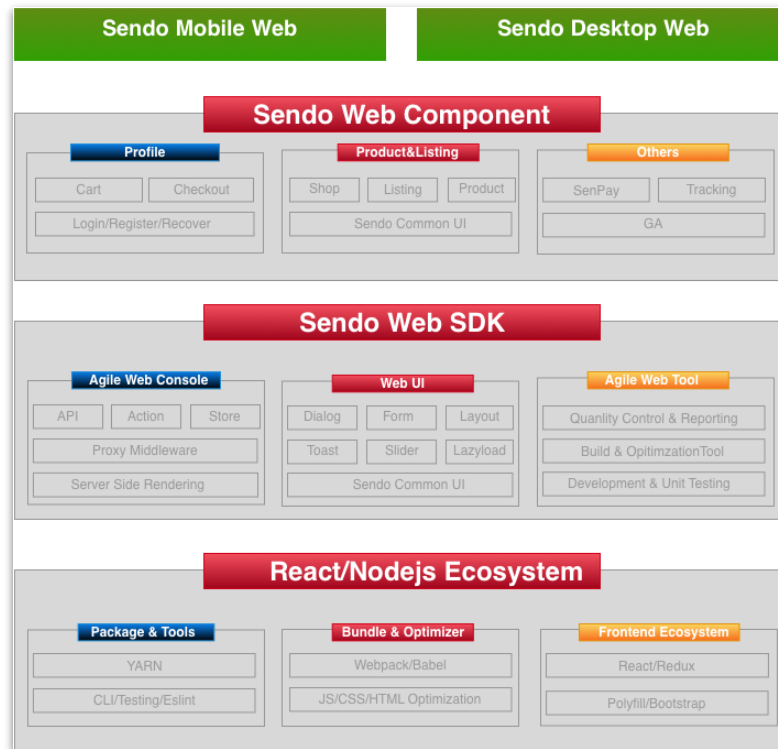
Stack of Technologies | Sendo Web SDK

Patterns, Structures, Conventions

UI/Tools/Processes

Validations/Helpers

Sharing Client Data



Monitoring System

Kibana

Grafana

Communication System | Pub/Sub

Built-in Pub/Sub by Sendo for failover/queue

Allow to Passive event-base design

All subscribers listen on single trusted data

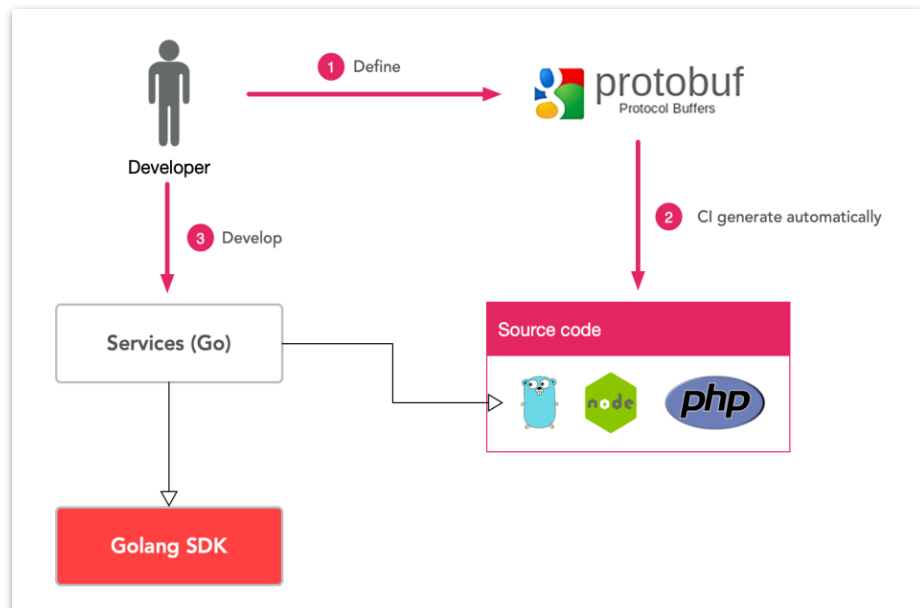
Reduce ▼ 90% dependencies between teams

Communication System | GRPC

One definition, run everywhere

Many languages & platforms
are supported

Transparently communicate
cross FE & BE, BE & BE teams



Best Practices | Backend

Optimize JSON encode/decode: ▲ 10x/RPS

In-app caching memory: ▲ 100x/RPS

Best Practices / Frontend Web

Follow PWA rules

Split all pages & pre-cache
using ServiceWorker

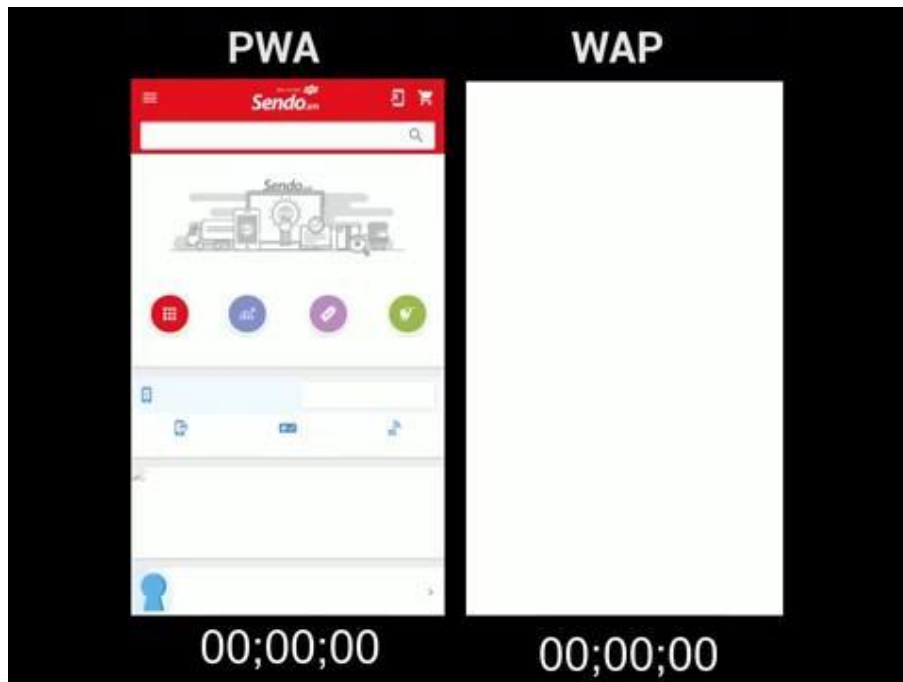
Cache all web pages

Continuously audit using
Lighthouse

Key results:

- Loading time: <50ms
- First paint: <1s
- Time to interactive: <3s

Best Practices | Frontend Web



Best Practices / Frontend App

Flutter integration into existing native app

Modular Native App (Swift, Kotlin)

Achievement

TPS: ▲ 10x

CCU: ▲ 5x

Zero Downtime: Black Friday 2018

Orders: ▲ 10x

THANK YOU