

# High Reliability & Performance Isomorphic App

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## About Me

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# OUTLINE

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- 01 Introduction
- 02 Community & Implementation & Thinking
- 03 High Reliability & High Performance

01

# Introduction

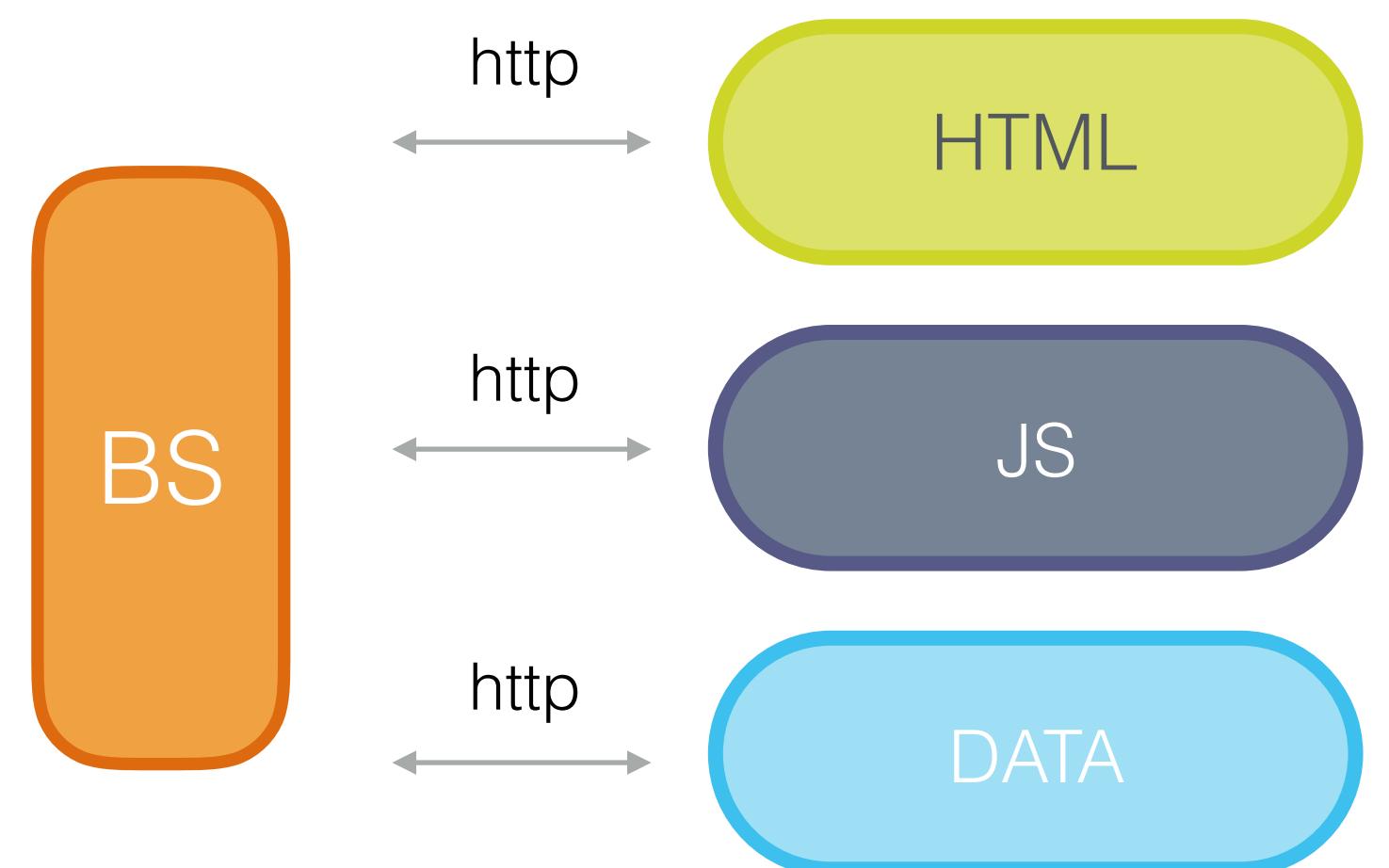
An isomorphic application is one whose code can run both in the server and the client.

## Benefits of Isomorphic APP

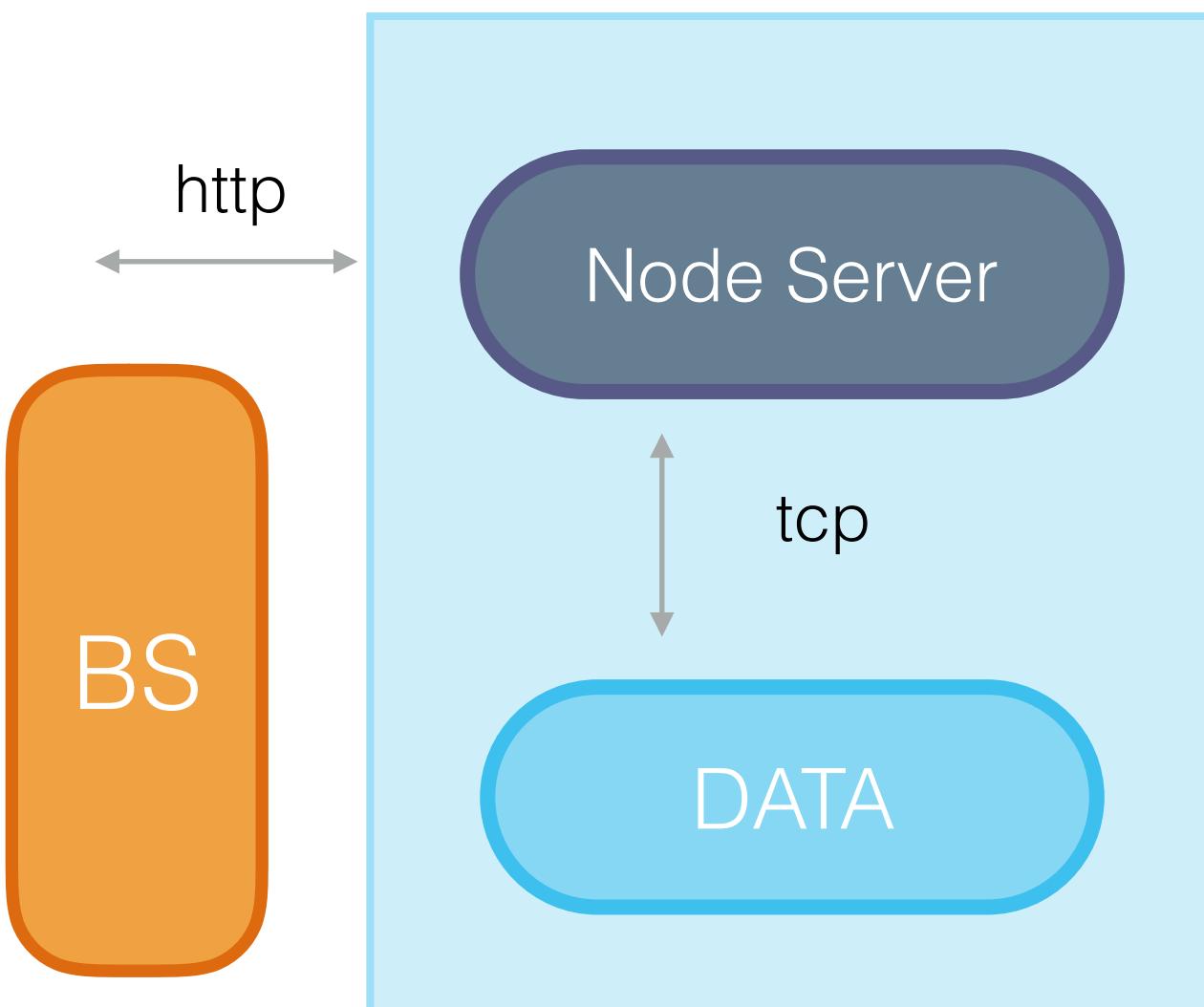
- Better performance
- SEO
- Uniform user experience

# CSR vs SSR vs Isomorphic

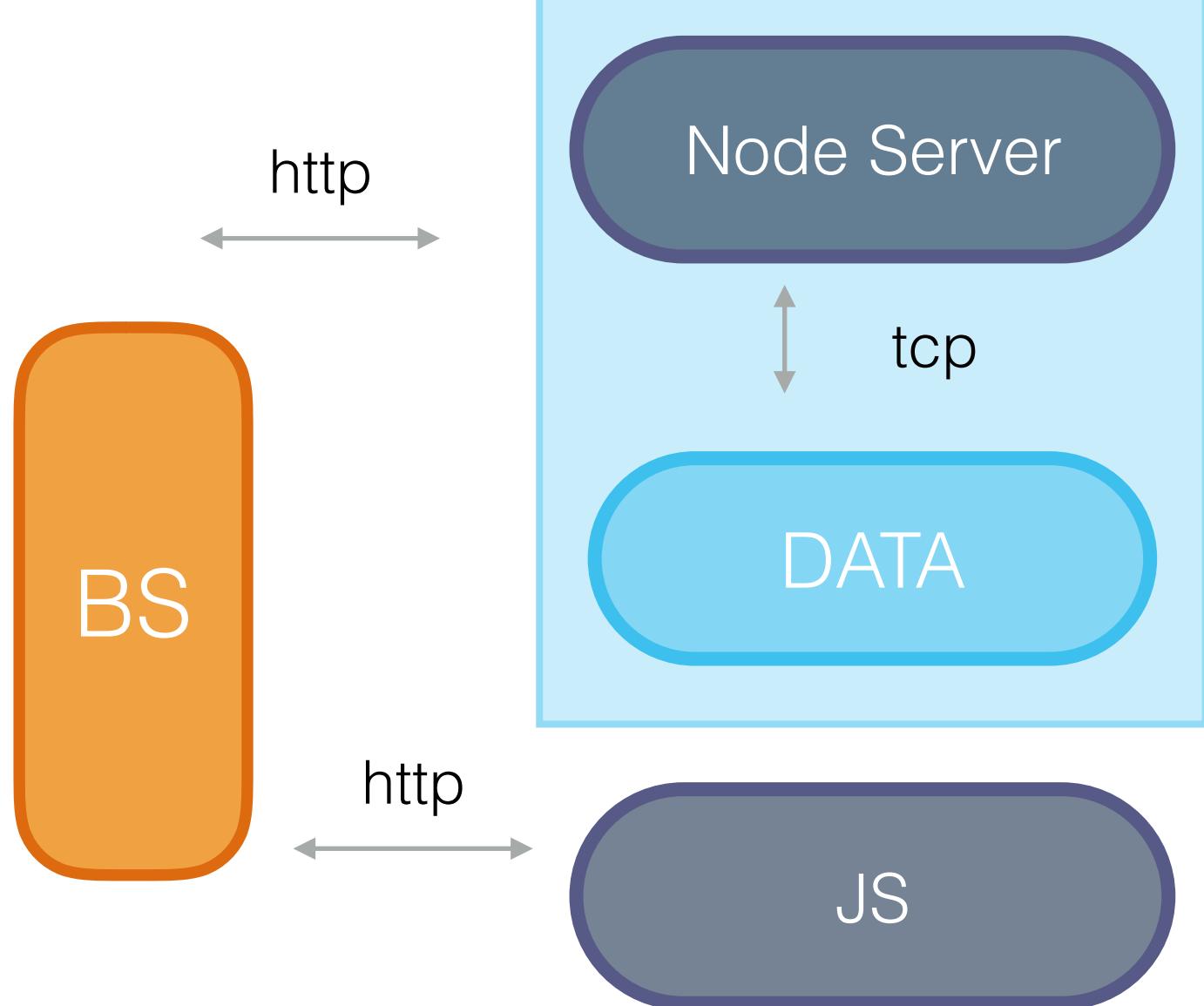
CSR



SSR



Isomorphic



Live Demo

Isomorphic

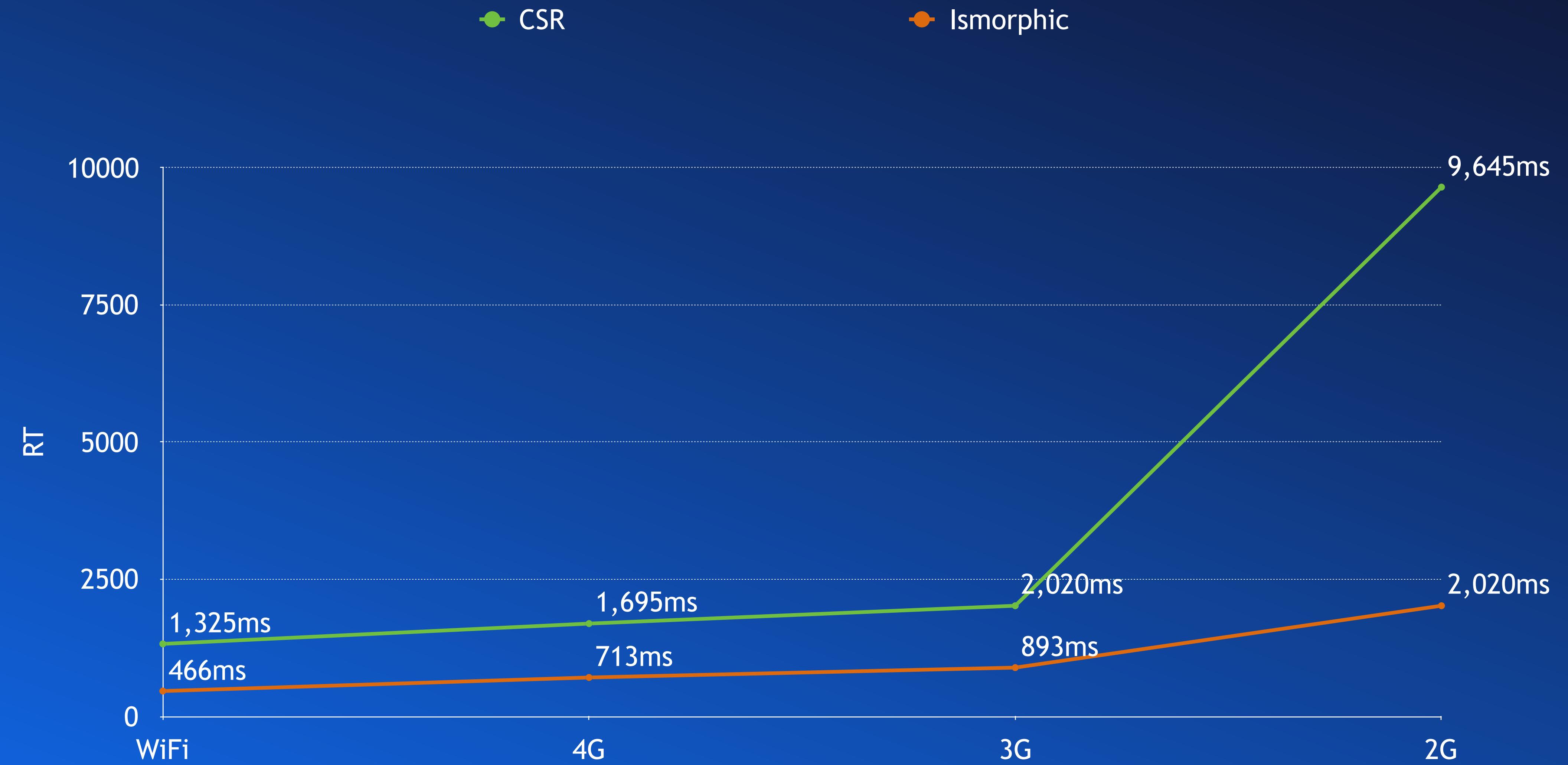
3G Network

CSR

start

start

## Comparison



02

## Community & Implementation & Thinking

## Who's Using?



Quora

Medium

Walmart

twitter

airbnb

Tencent 腾讯

Alibaba Group

Quizzes

## Open-source Framework

**next.js** : Framework for server-rendered or statically-exported React apps

**react-server**: Blazing fast page load and seamless navigation

**beidou**: Isomorphic framework for server-rendered React apps

## Technical Implementation

**beidou-plugin-react** : View plugin build with react.

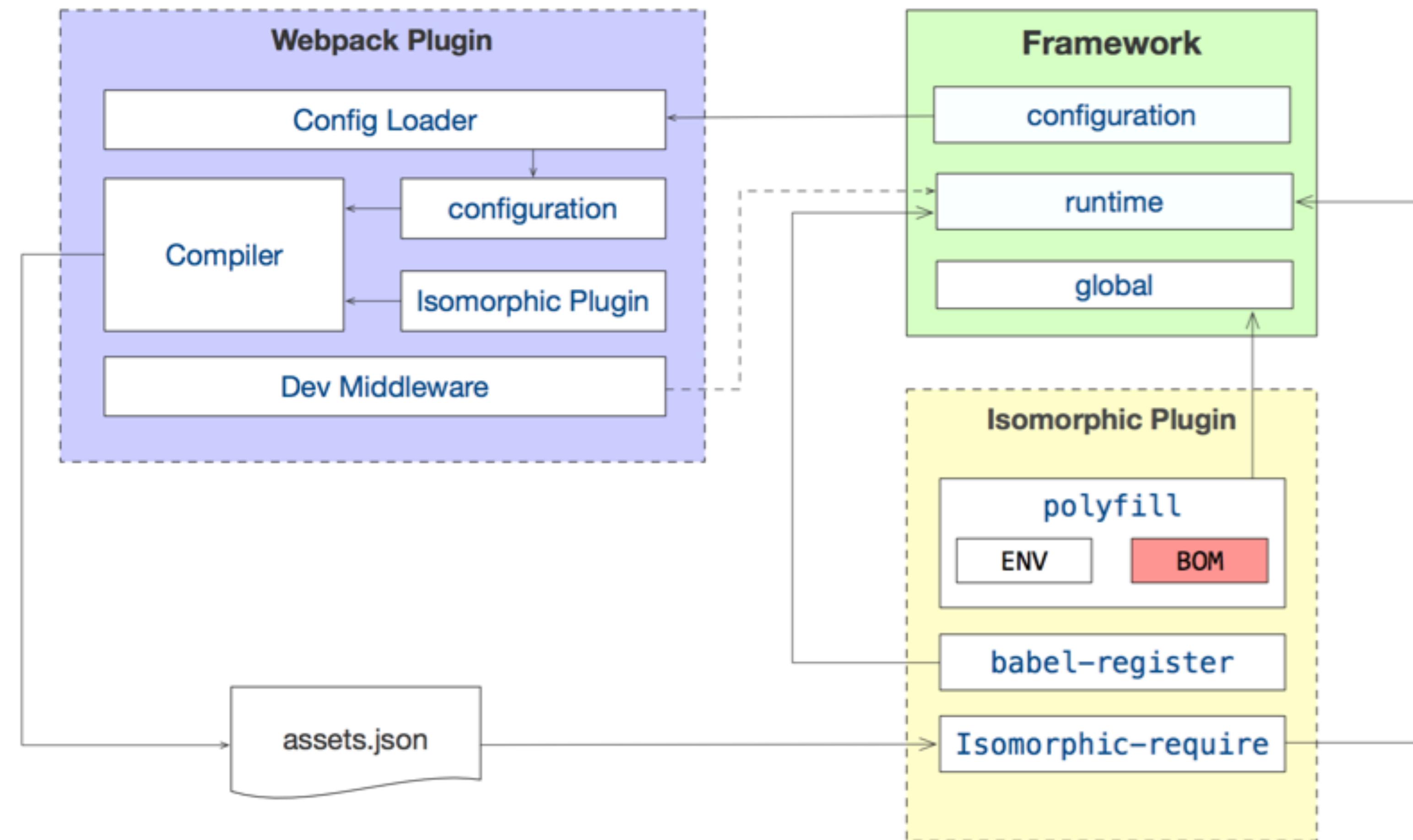
**beidou-plugin-webpack**: Webpack plugin for code build

**beidou-plugin-isomorphic**: Isomorphic plugin to support BOM/DOM variables & non-JS source, such as less

**beidou-plugin-router**: Auto router plugin

...

# Technical Implementation



## Usage in Alibaba

- More than 20 online applications
- Cover 10 Business Unit
- Open-sourced

# Thinking of open-source



## Hotspot Issues

- 1. Memory leak
- 2. Performance limitation
- ...

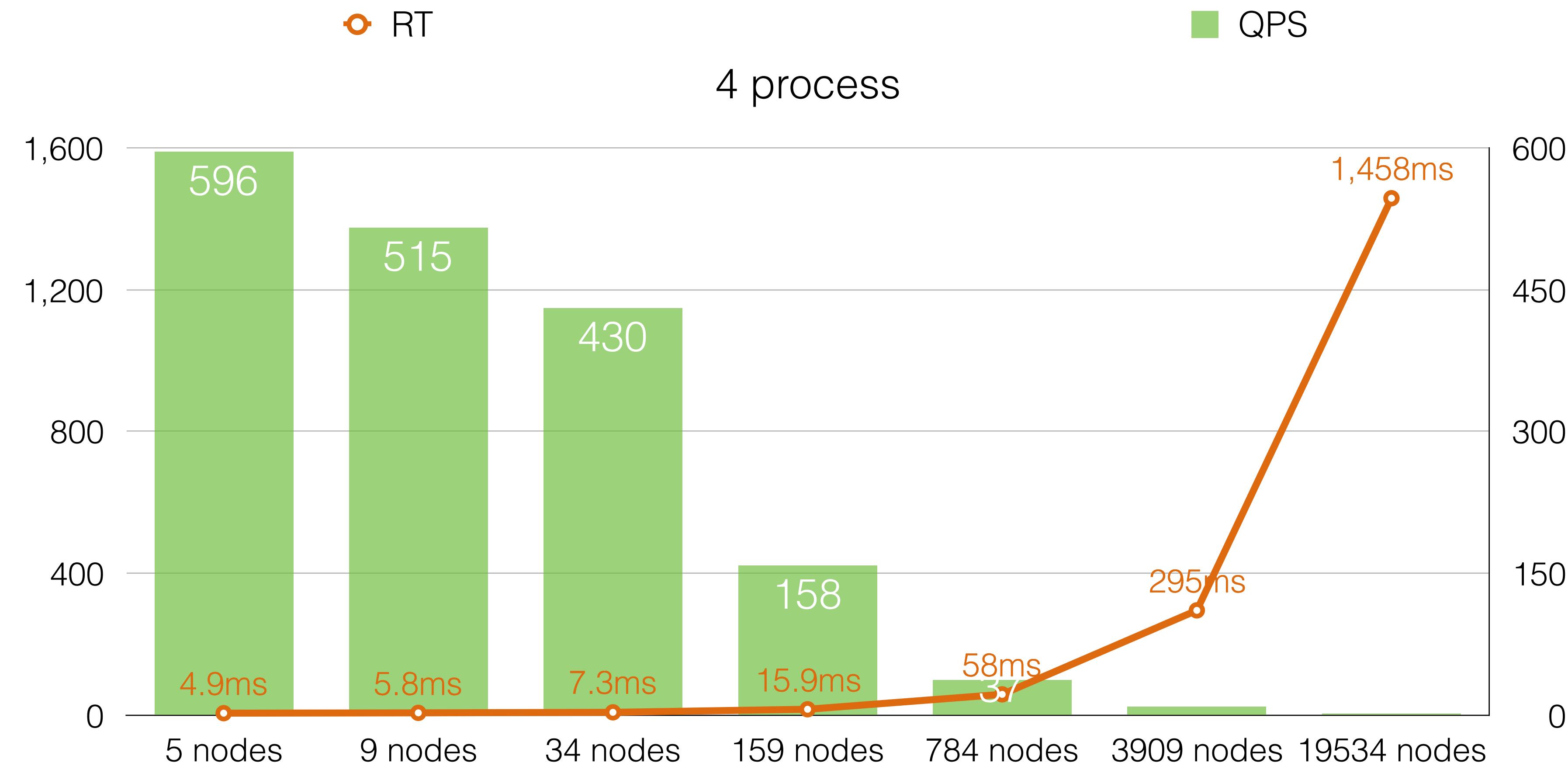
03

## High Reliability & High Performance

## High Reliability

- Cluster(egg-cluster/ pm2)
- Unit testing
- Stress testing
- Monitoring and alarm
- Disaster recovery
- ...

## Performance



## Performance Test

Simulate a very **complex page**, nodes number is 3342

Render Time is: **315 ms**

## Performance speed up

### 1. Use babel **performance** plugin

Render Time is: **275.5 ms**

## Performance speed up

2. Use Node8 or newer

Render Time is: **227** ms

## Performance speed up

### 3. Use production mode

Render Time is: **85.75 ms**

## Performance speed up

### 4. Part of modules rendered by browser/client side

Render Time is: **64** ms

## Performance speed up

### 5. Cache modules/components

Render Time is: **46.50 ms**

## Performance speed up

### 6. Use React16 or newer

Whole page render Time is: **4.28 ms**

With part of components CSR: **2.31 ms**

## Recap

- Use babel performance plugin(**yes**)
- Use Node8 or newer(**yes**)
- Use production mode(**yes**)
- Part of modules rendered by client side(**as needs**)
- Cache modules/components(**dangerous, carefully use**)
- Use React16 or newer(**highly recommended**)

## More

- Use Async function
- Reducing hierarchy complexity
- Hot cache
- ...

## Extremely Fast



## Methodology

# CPU Profile

## Thinking



400000000 → 20000 → 300 → ?

## Contact Us



<https://github.com/alibaba/beidou>

## Useful Link

- Beidou: <https://github.com/alibaba/beidou/>
- React同构与极致的性能优化
- Node应用内存泄漏分析方法论与实战
- 唯快不破，让nodejs再快一点

# Thanks