On the road to open source

Naver WebKit - Project name : Sling

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Overview

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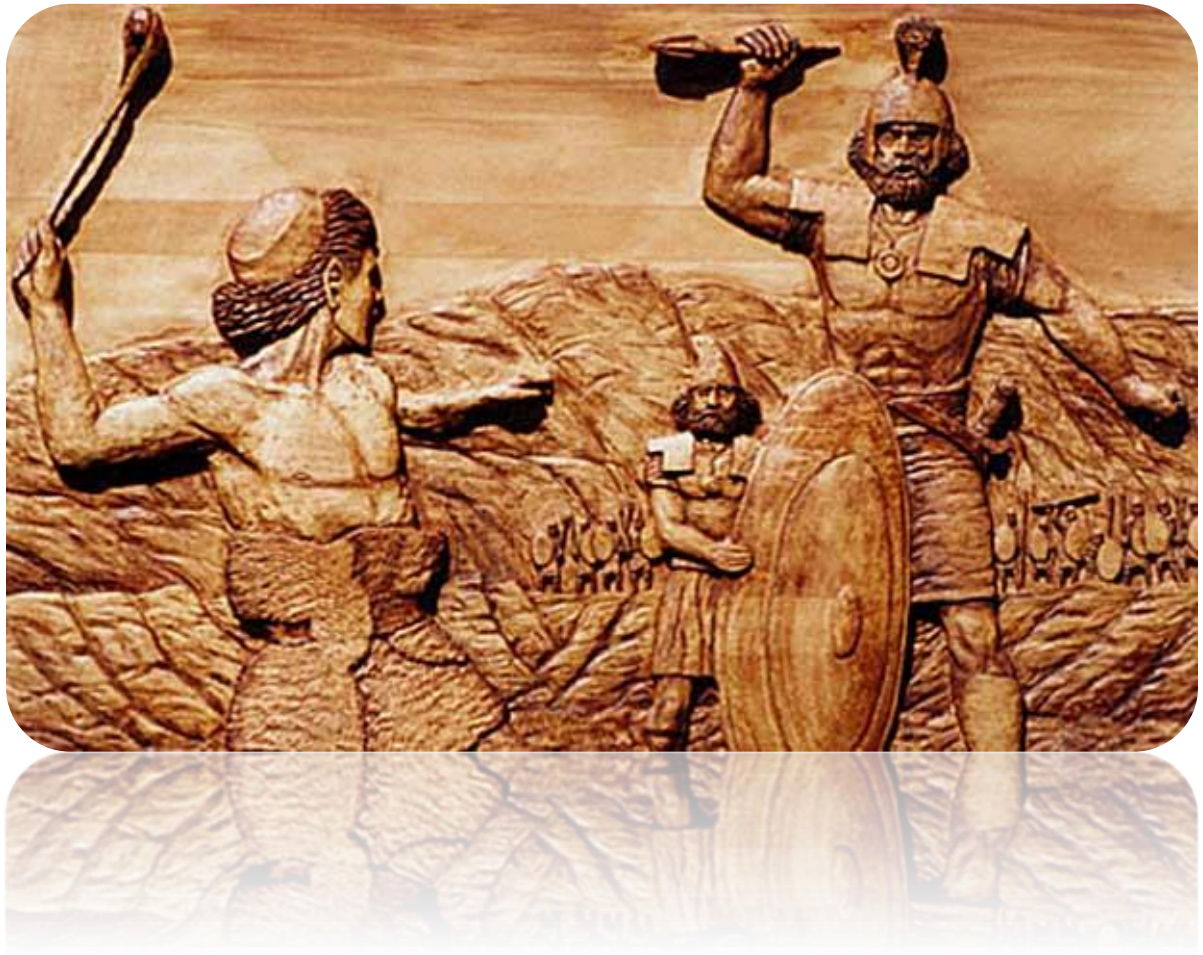
- **Sling**
  - Rendering Engine for web pages
  - Forked from Apple Webkit
  - Supported to WebKit-1 and WebKit-2
  - Ported to Windows x86/x64 and Android
  - Great Rendering and JS Performance
  - Support chrome extension (developing)
  - Support DWrite font Rendering on Windows
  - Made by Naver Labs
  - Developed from 2012

- **SlingTab**
  - Chrome Extension
  - installable on Whale and Chrome
  - Will support to Firefox and IE



Goals

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2x

Fast launching
Fast loading
Fast rendering

-50%

Low memory
Low battery
Low crash

1 + 1

Windows
Android
IOT

Current Status

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Performance

- JavaScript Performance
  → equal to chrome
- Graphics Performance
  → better than chrome

Resources

- Memory Pressure Handler
  → configurable max memory
- Memory Leak Detector
  → support test application

Multi-platforms

- Windows
  → from win7, x86/x64
- Android
  → from ICS

Graphics Benchmark Score

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Benchmarks	Sling	Chrome 55	Original Webkit-wincairo
DavidRousset-sprite	3135	**3131**	**3125**
CanvasMark	7150	7001 (실행 중 멈추는 증상 잦음)	Not working
MarineBlue	205 fps	125 fps	70 fps
Fish IE Tank	Max 일 때, 렌더링 부드러움	Max일 때, 렌더링 끊김이 잦음	Max일 때, 정상 동작 안함
Smashcat	220 fps	184 fps	87 fps
BunnyMark	58 fps	48 fps	18 fps
PeaceKeeper	3893	3565	Abnormal

Sling is better than Chrome!

Test Environments

- OS : Windows 10 x64
- CPU : intel i5-2500
- Memory :4GB
- Graphics : AMD Radeon HD 6450
- Reboot per test
- 10 times average

JavaScript Benchmark Score

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JS benchmarks	Sling	Chrome 55
JetStream (high is better)	155	155
Octane (high is better)	23012	23607
Sunspider (low is better)	162 (ms)	201 (ms)
Kraken (low is better)	1250 (ms)	1157 (ms)
JSBench (low is better)	22 (ms)	115 (ms)

→ Real webpage loading test

Sling vs Chrome : Equivalent level

Test Environments

- OS : Windows 10 x64
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Architecture

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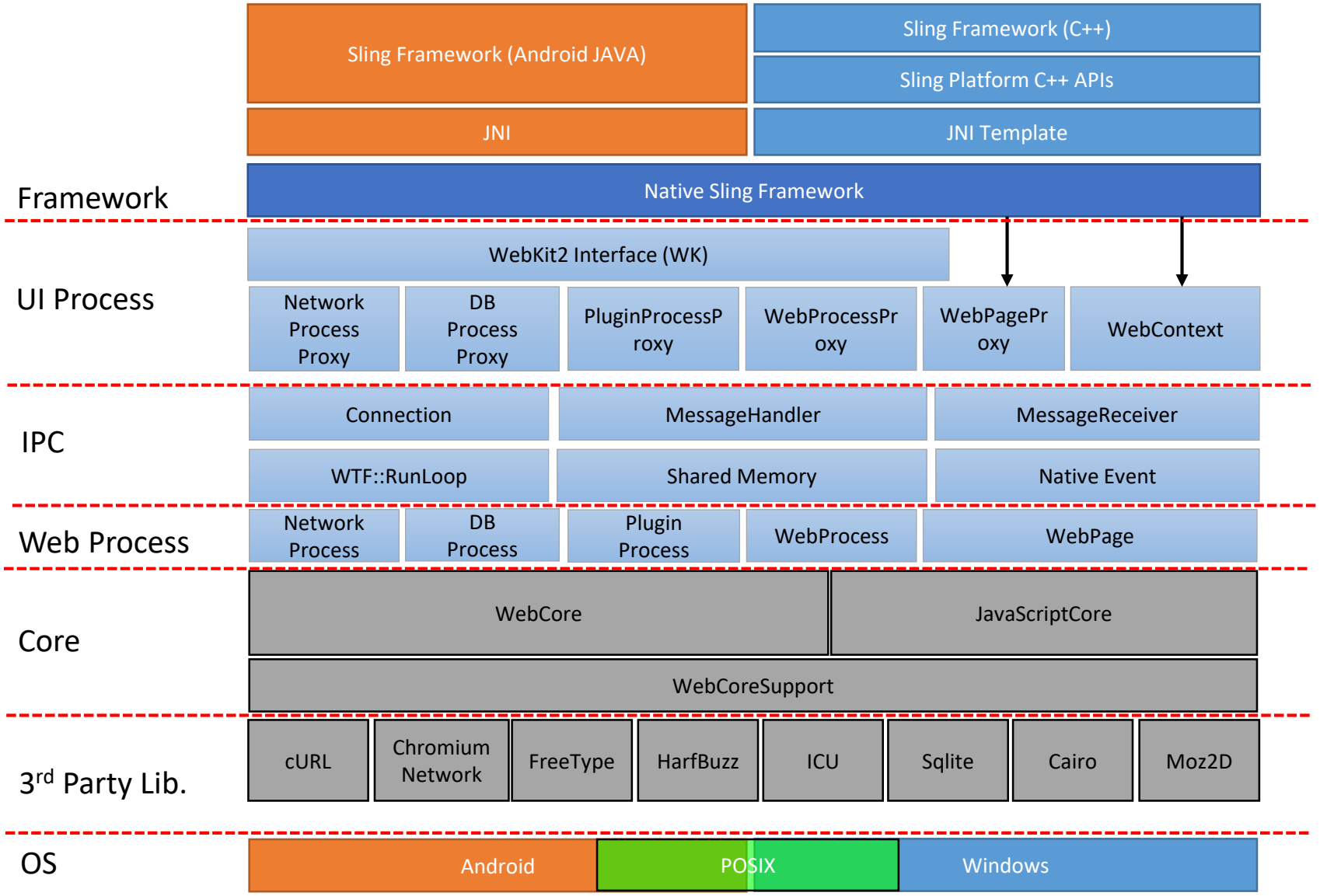

Convenience for multi-platform

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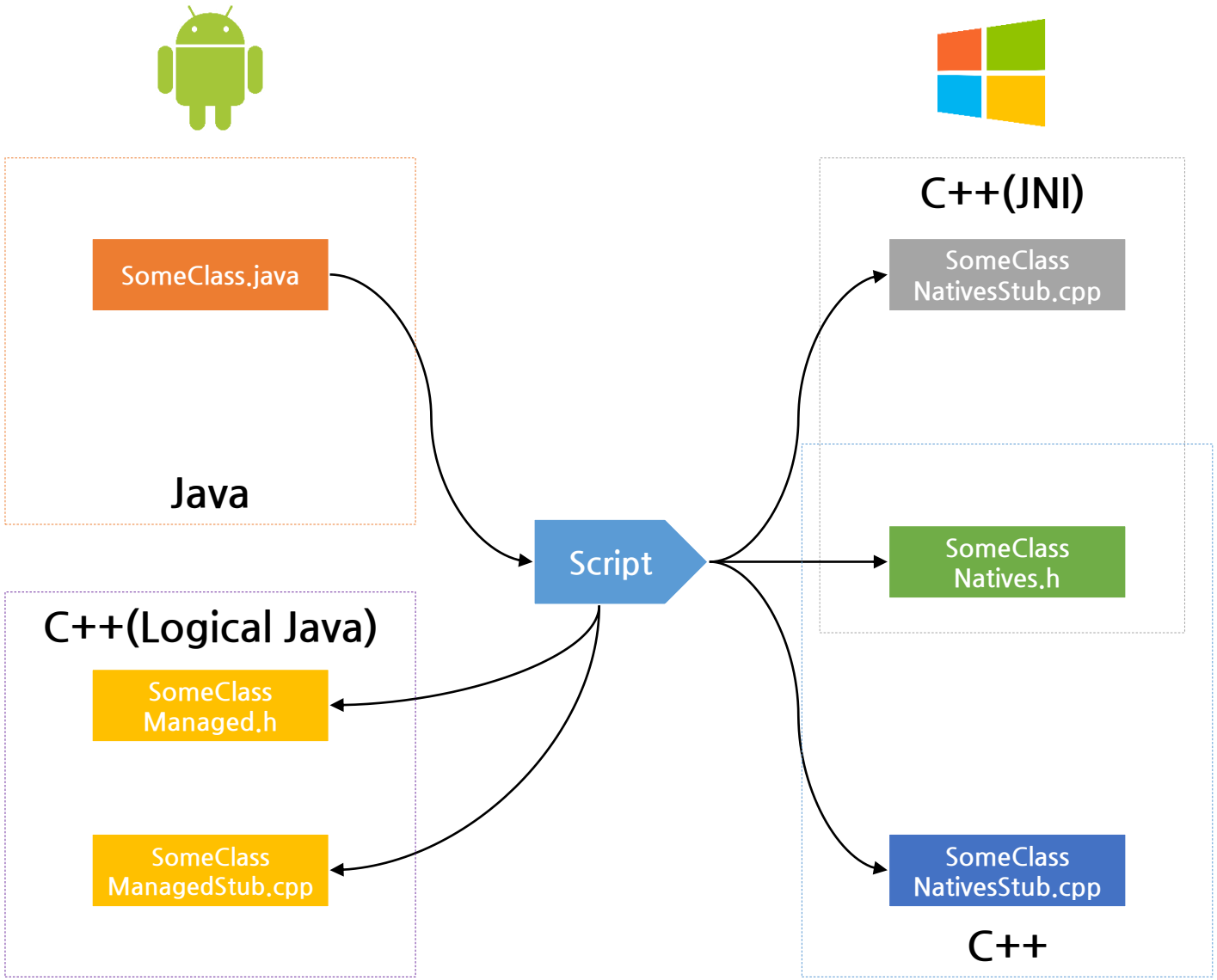

Why? - Sling C++ APIS/POSIX Layer/JNI Template?

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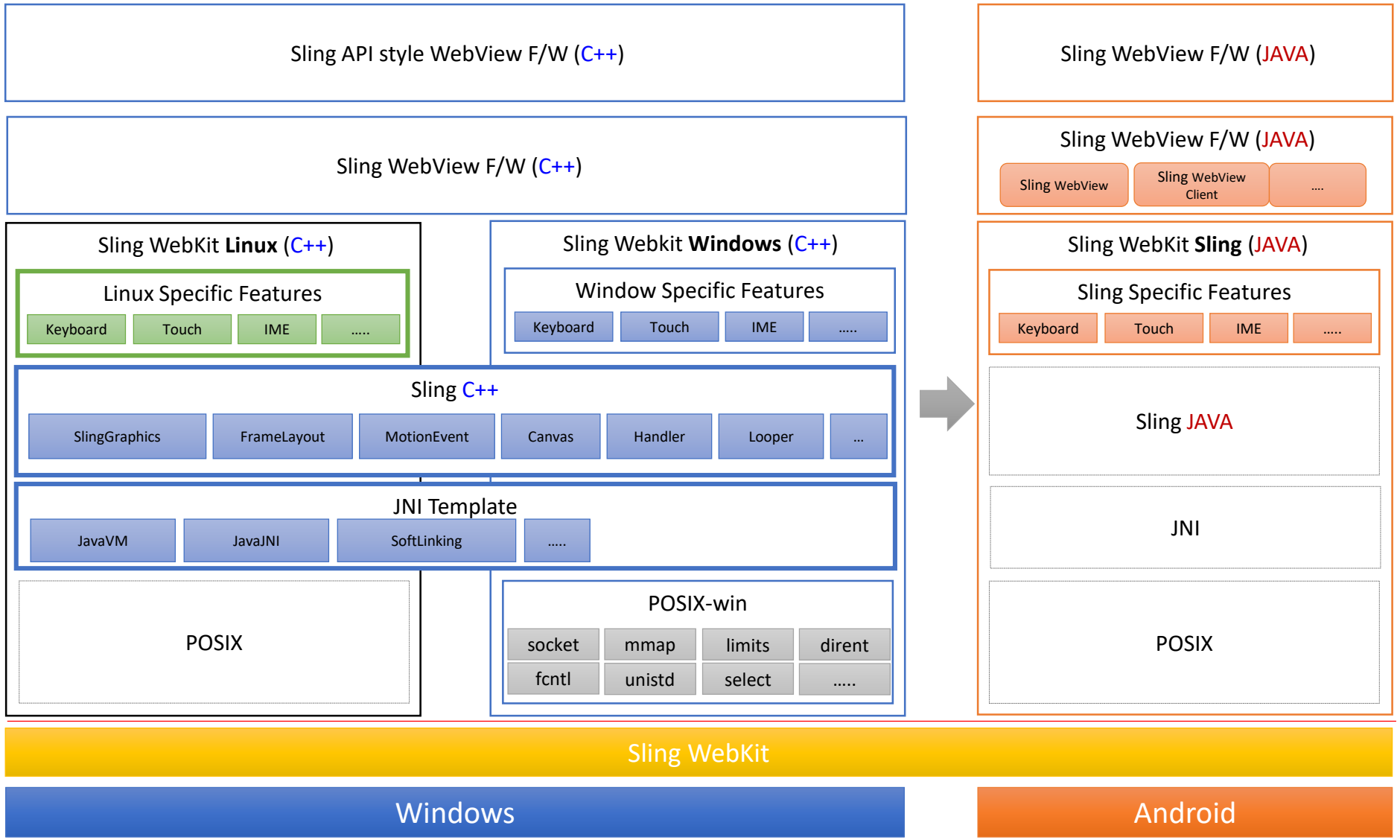
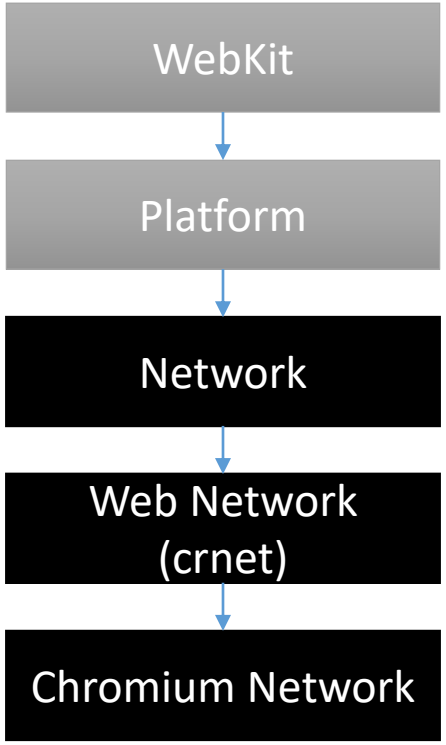
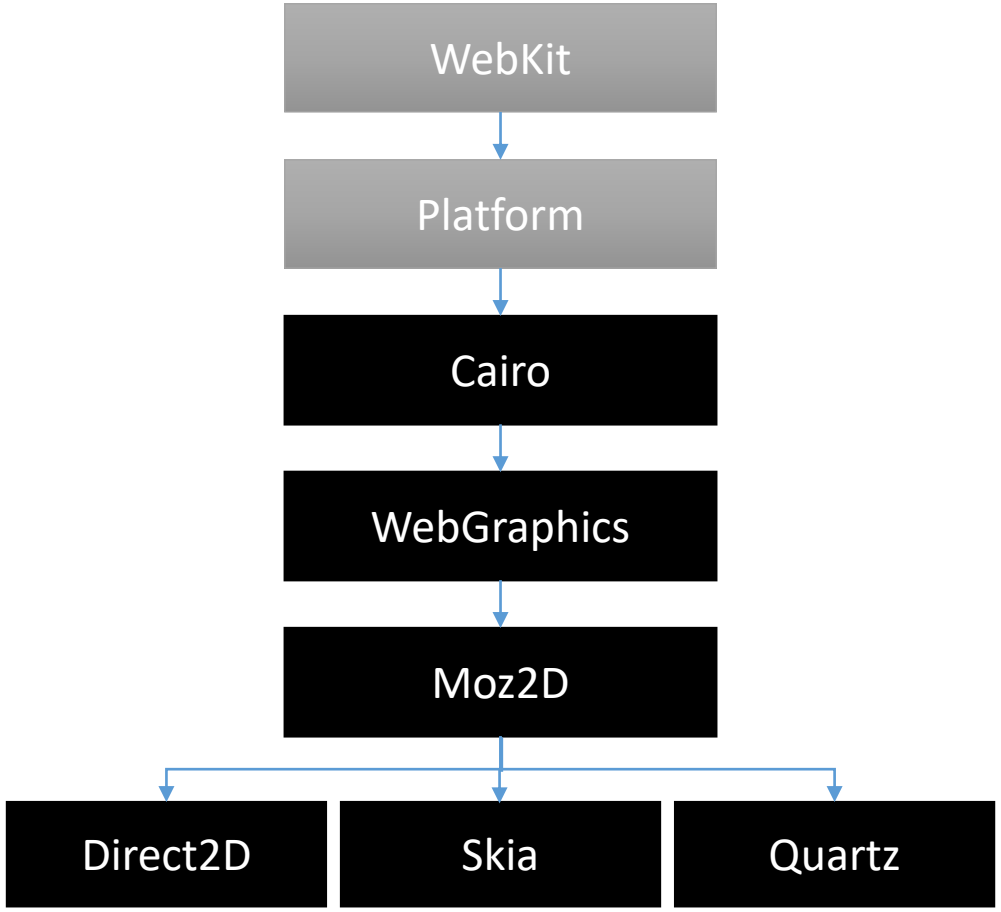


WebNetwork



ftp, http/https, websocket, QUIC, SPDY, ..

WebGraphics



without DWrite

with DWrite

WebExtensions

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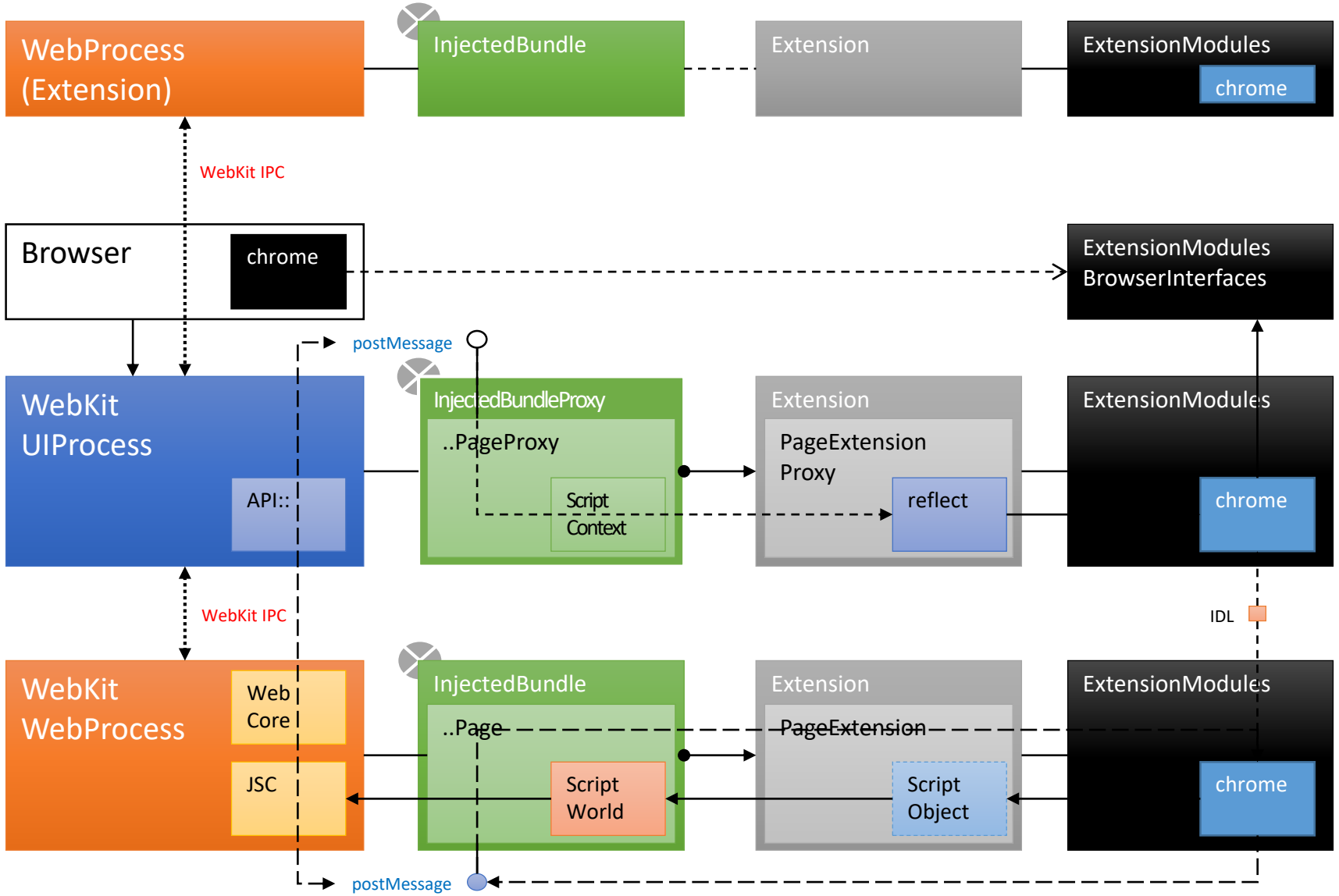
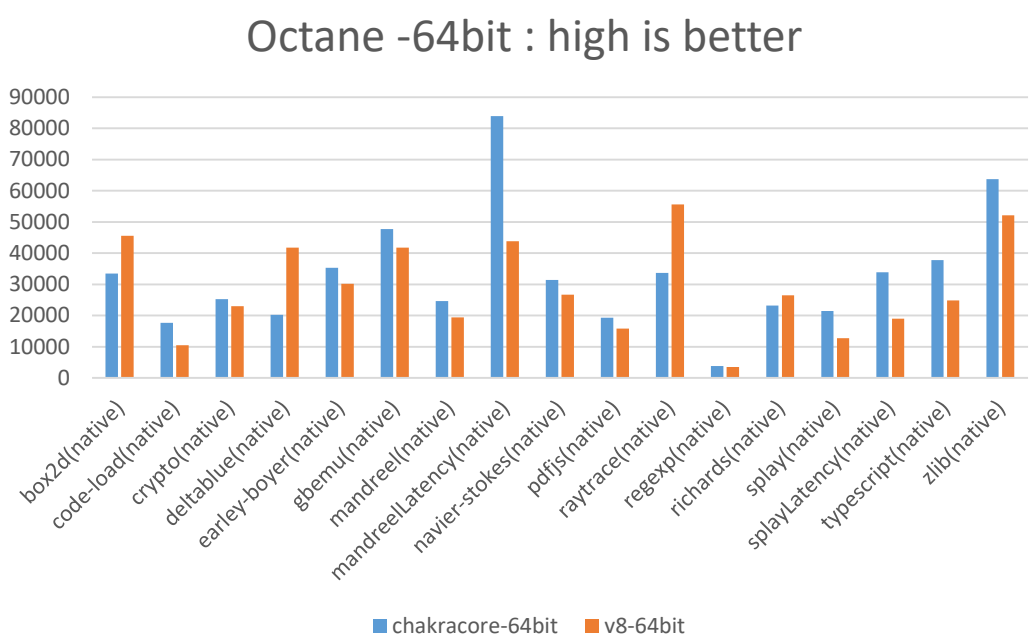


Current Status

- JSC + bmalloc for windows (15%~20% speed-up)
- Test Success on several pages with ChakraCore
- Current Implementation limitation
  → Many tightly coupling : JSC private APIs in WebCore

ChakraCore is
- https://github.com/Microsoft/ChakraCore (MIT License)

Node-ChakraCore is
- implements the most essential V8 APIs so that the underlying JavaScript engine change is transparent to Node.js and other native addon modules written for V8.
- https://github.com/nodejs/node-chakracore



WebTranslation (General)

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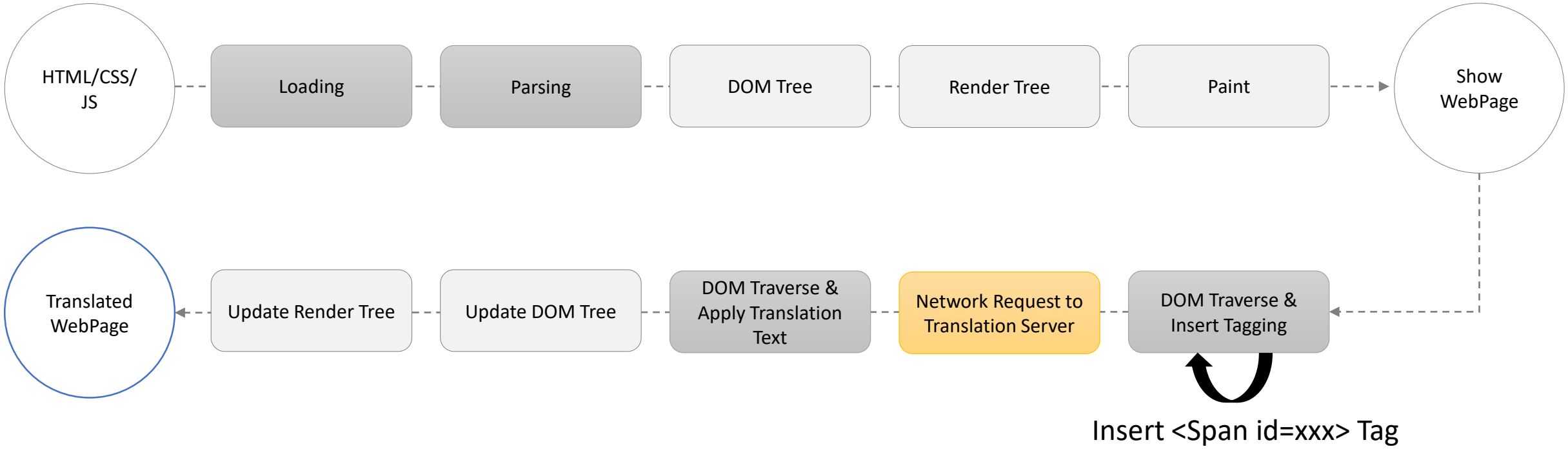

WebTranslation (Native Translation for Sling)

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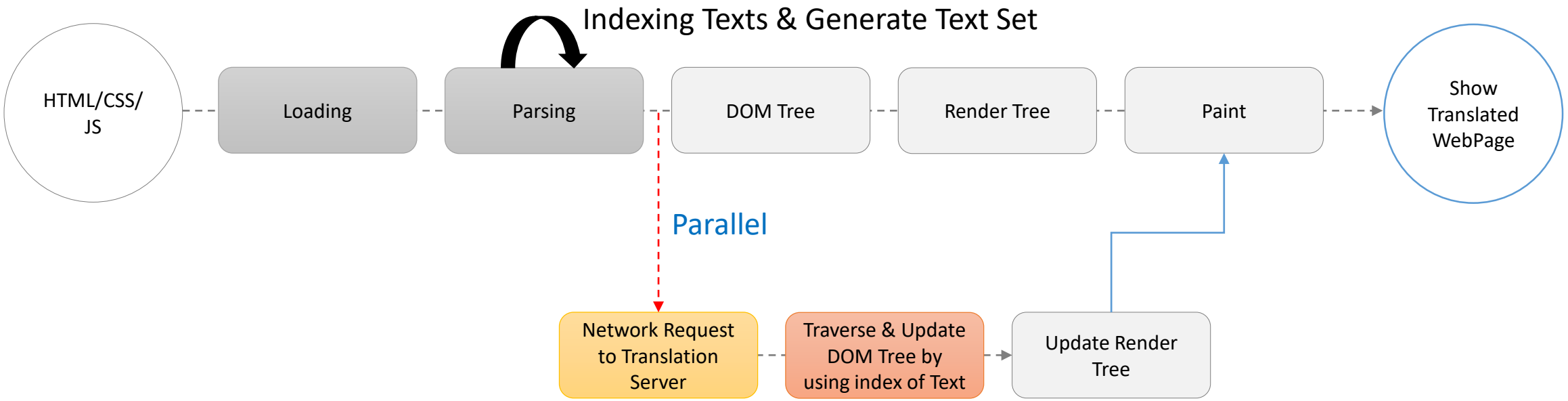

Sling's Translation Speed 1.5X ~ 2X

Open Schedule

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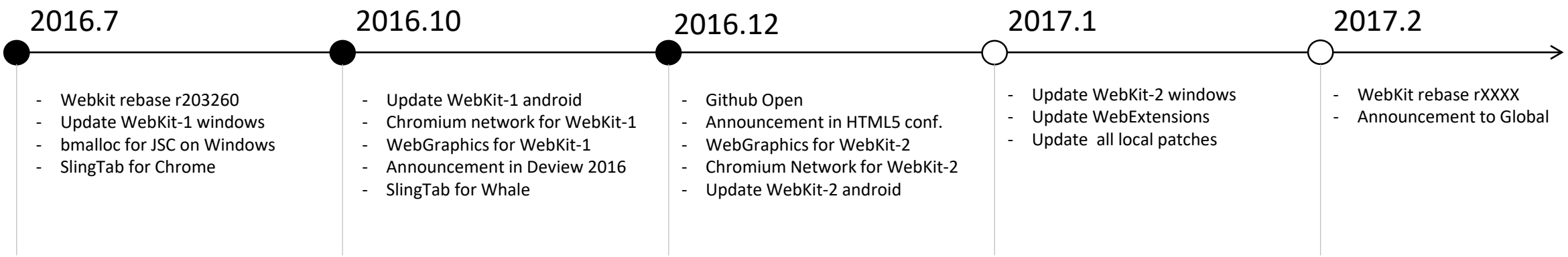

Repository Structure (https://github.com/naver/sling)

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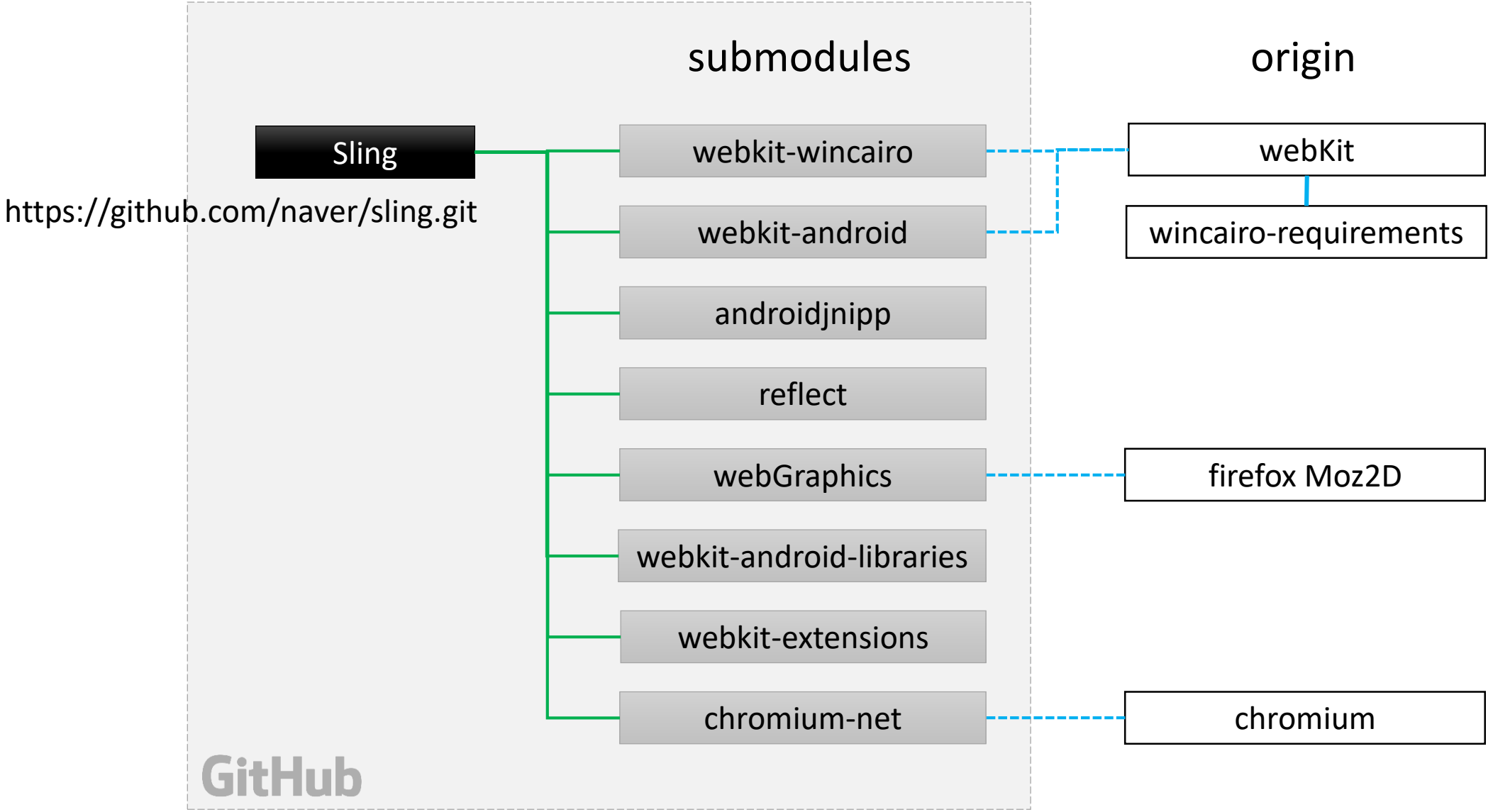

Thank you!!