

TIZEN™ DEVELOPER CONFERENCE MAY 7-9, 2012



WebKit/EFL & WebKit2/EFL

Ming Jin, Samsung Electronics

(May 9, 2012)

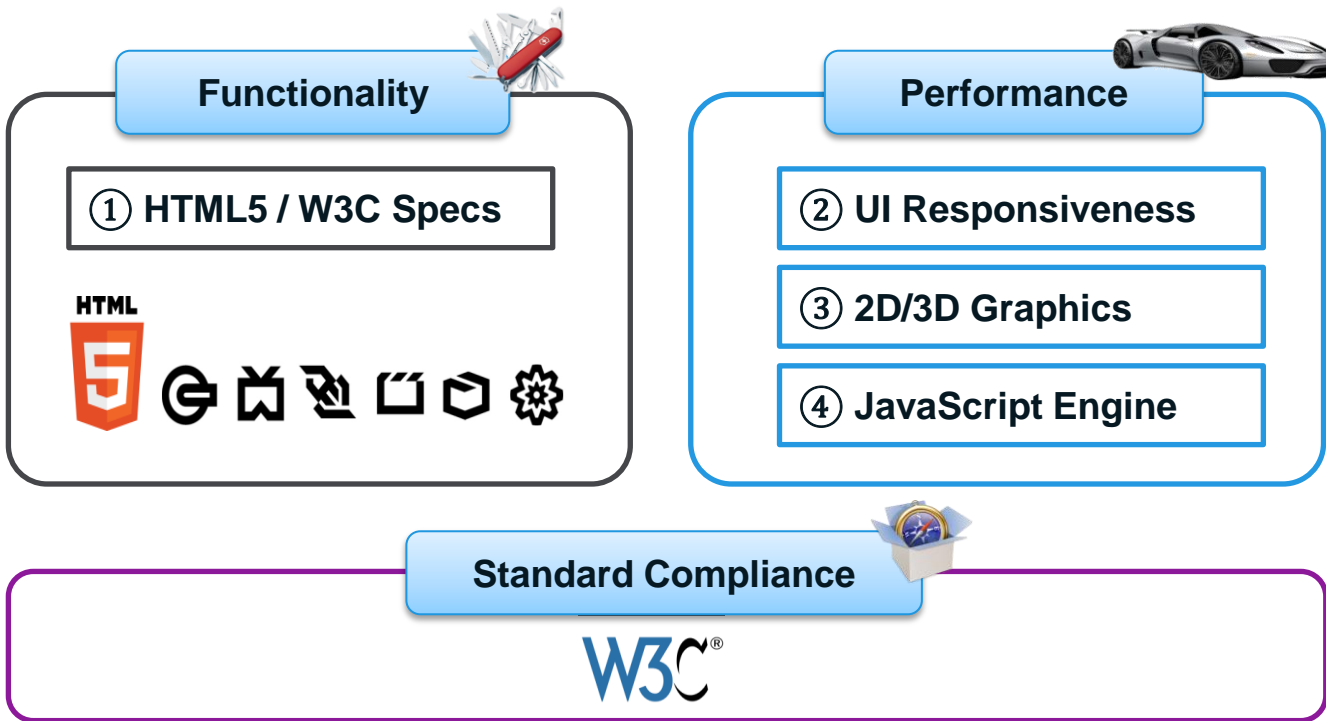
Contents

- What Really Matters
 - *Standards, Functionality, Performance*
- WebKit/EFL Internals
 - *HTML5, UI Responsiveness, 2D/3D Graphics, etc.*
- WebKit2/EFL Internals
 - *Accelerated Composition, Rendering Flow, etc.*

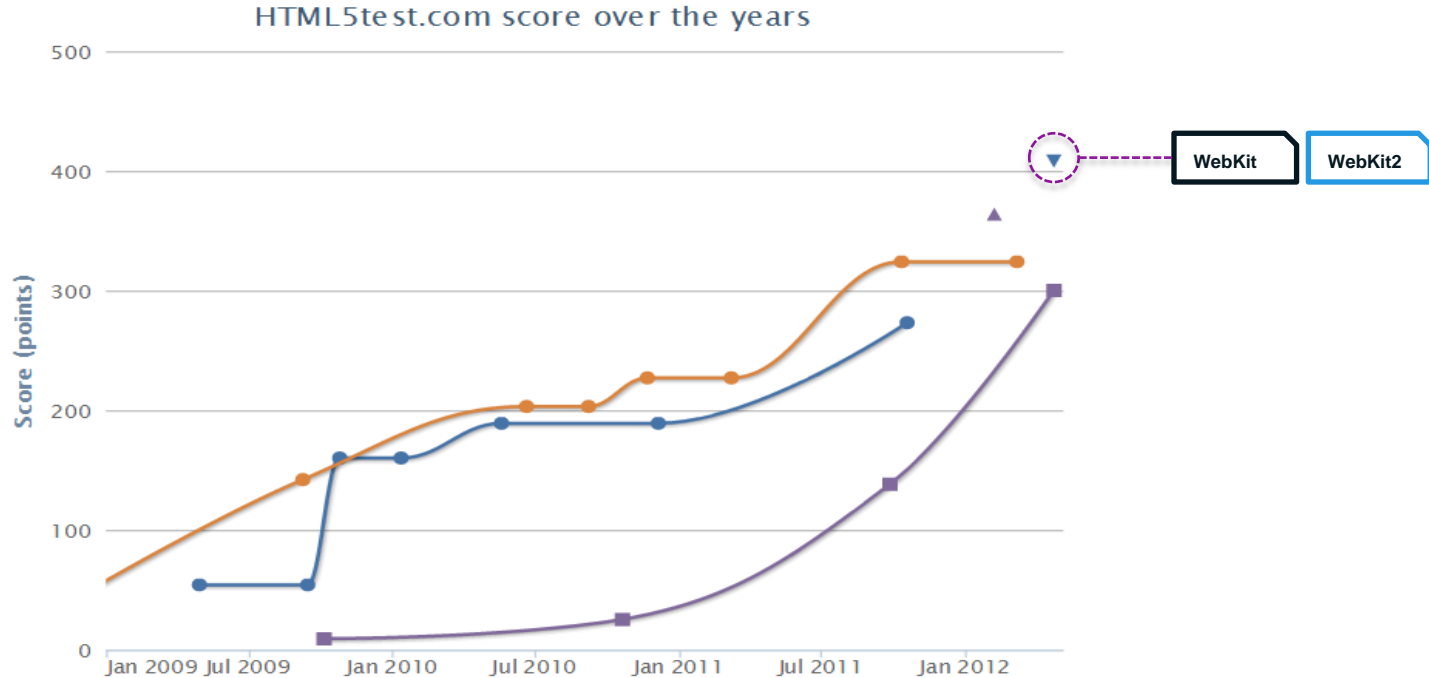
Web Applications on Tizen Platform



What Really Matters



HTML5 Support Status



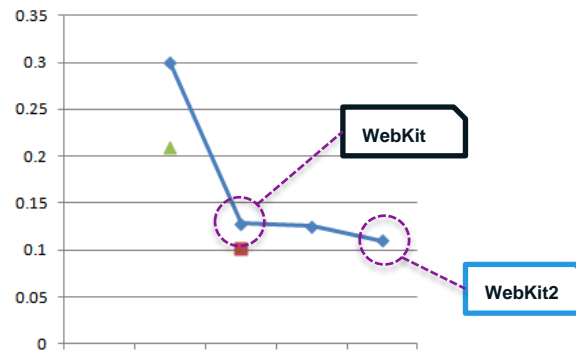
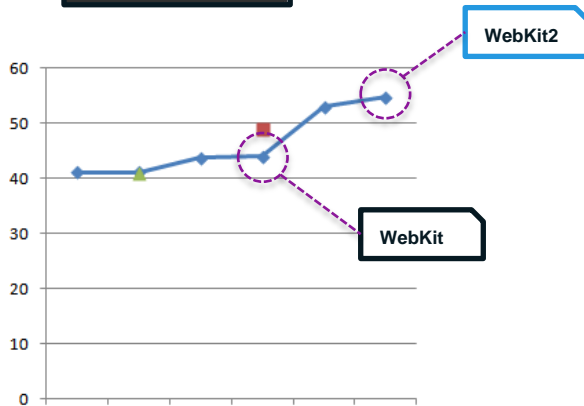
UI Responsiveness



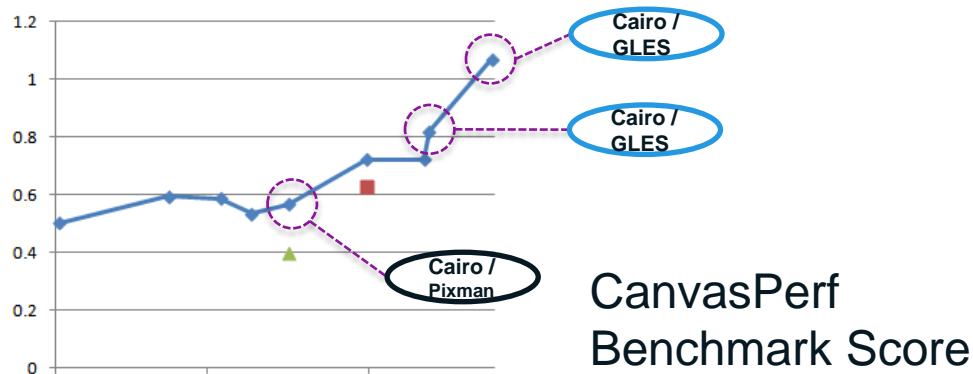
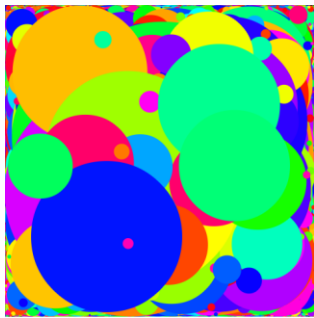
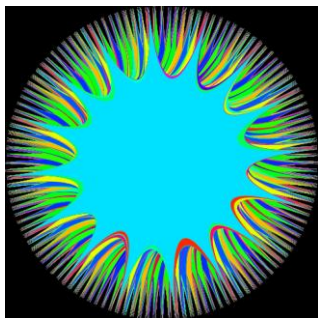
Scroll Performance



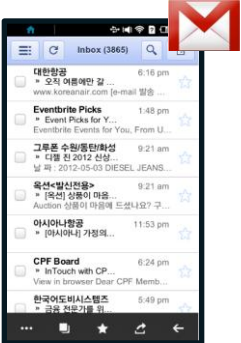
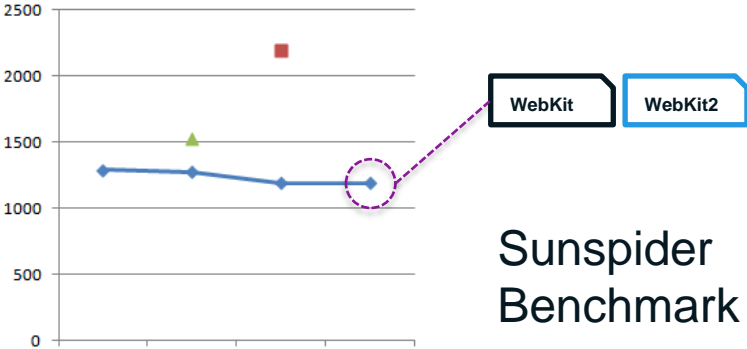
Touch Response



2D/3D Graphics



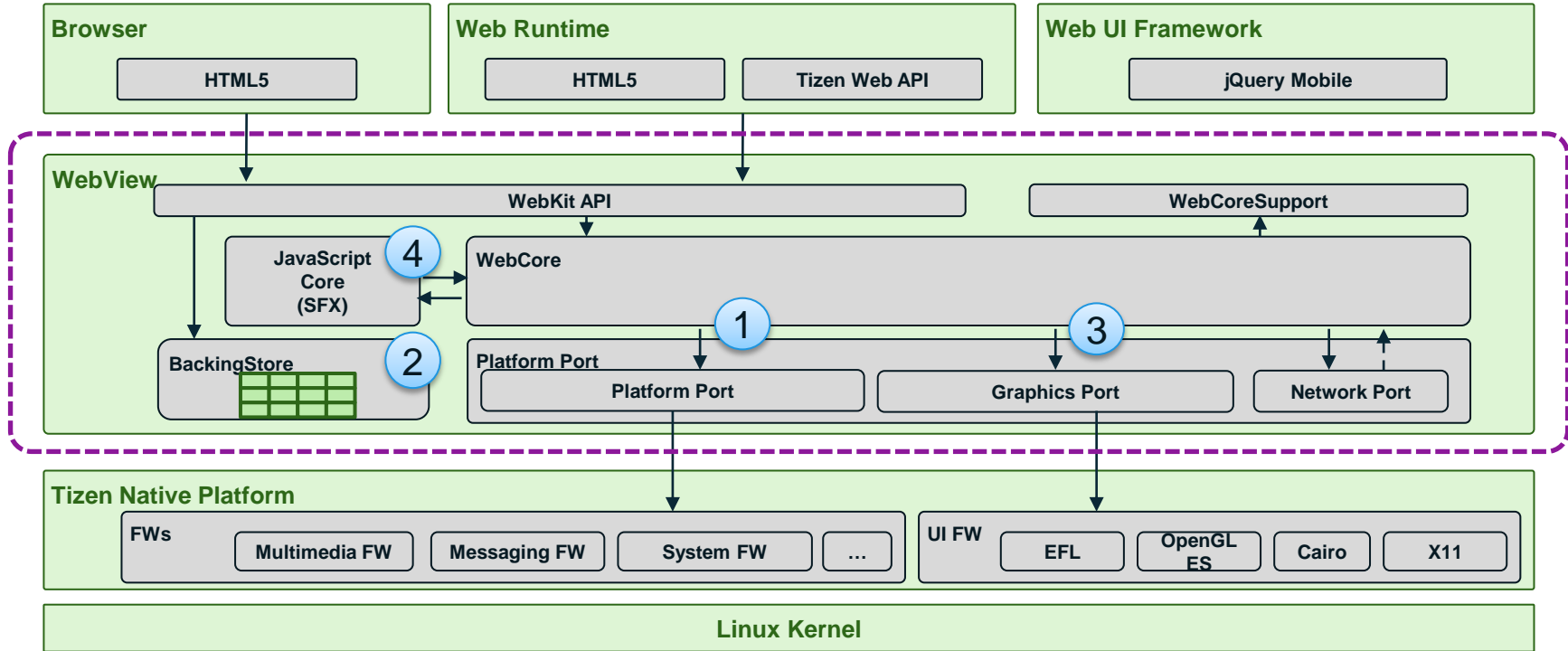
JavaScript Engine



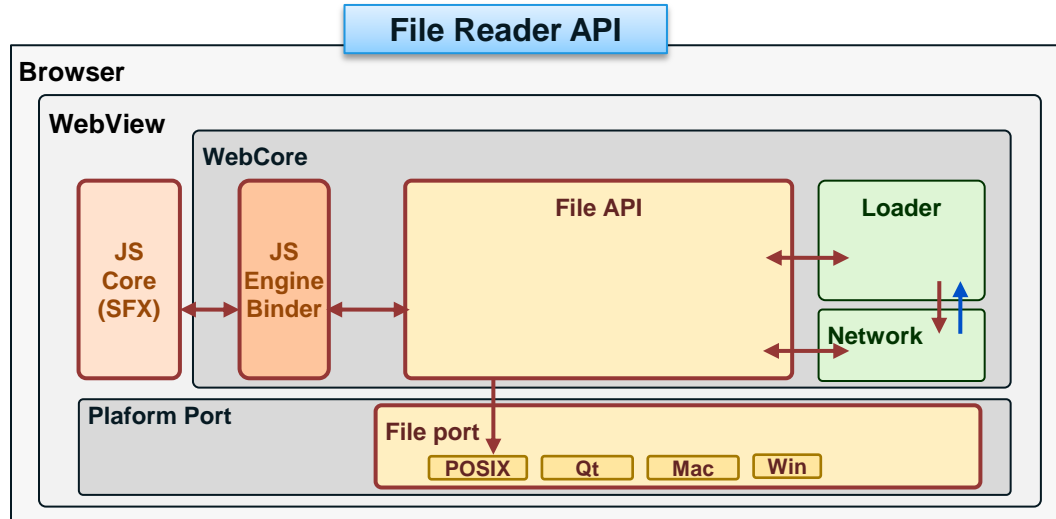
WebKit/EFL

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Overall Architecture & Focus

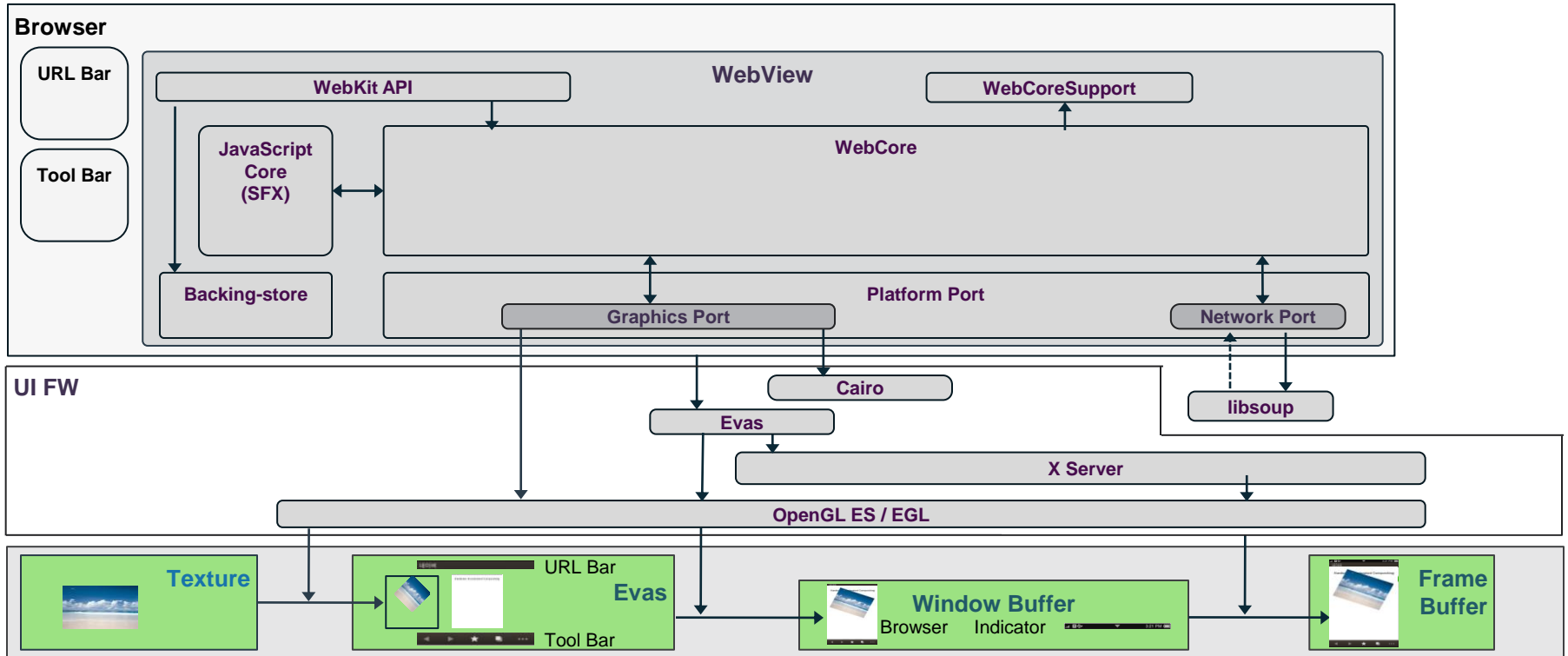


HTML5 Implementation

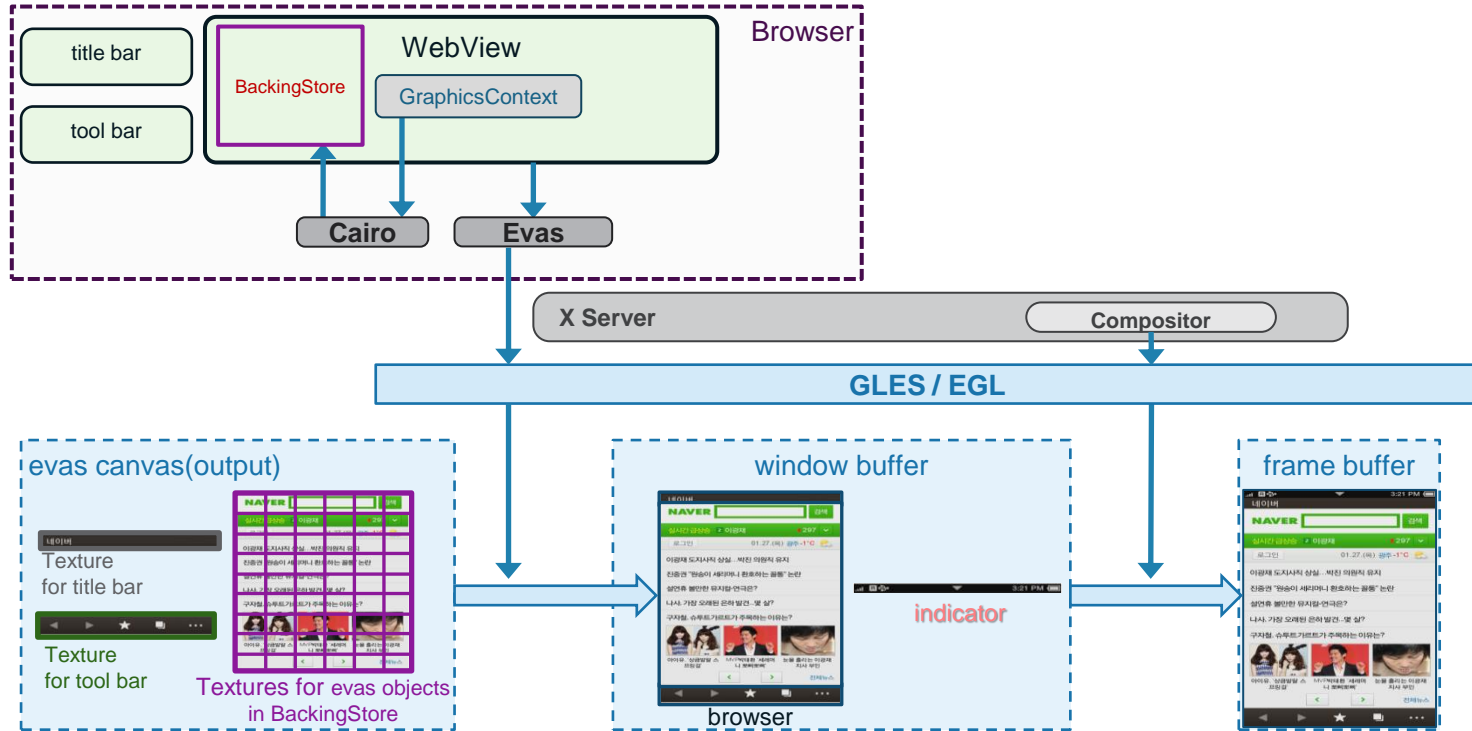


- Web Socket
- Web GL
- Geolocation API
- Web Worker
- File System
- Vibration
- ...

Rendering Flow Overview

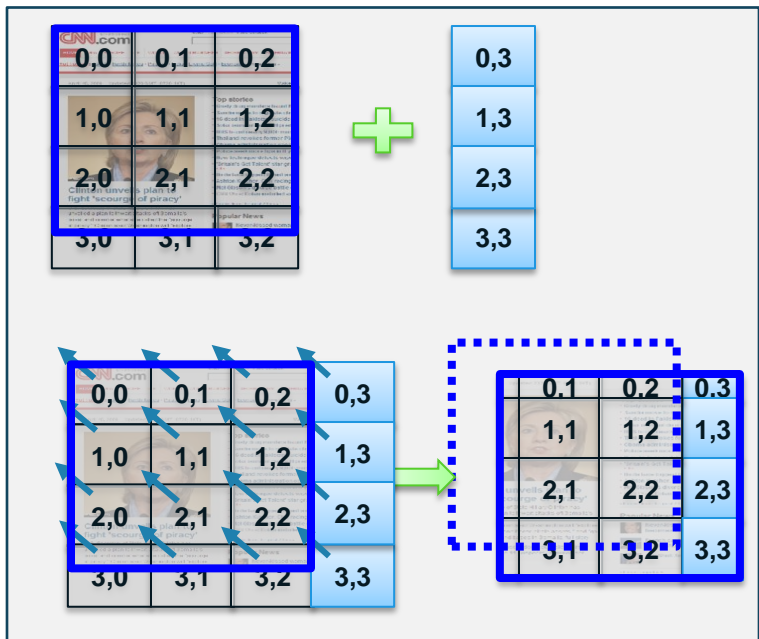
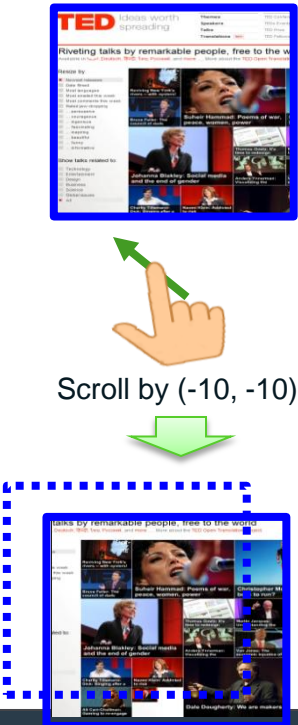
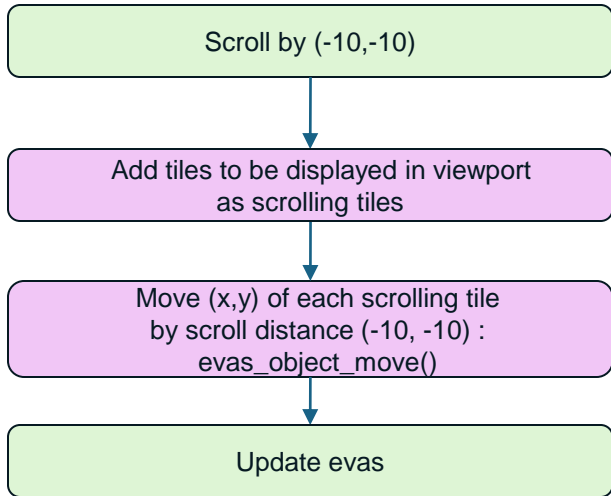


Backing-store: Rendering Flow



Backing-store: Panning

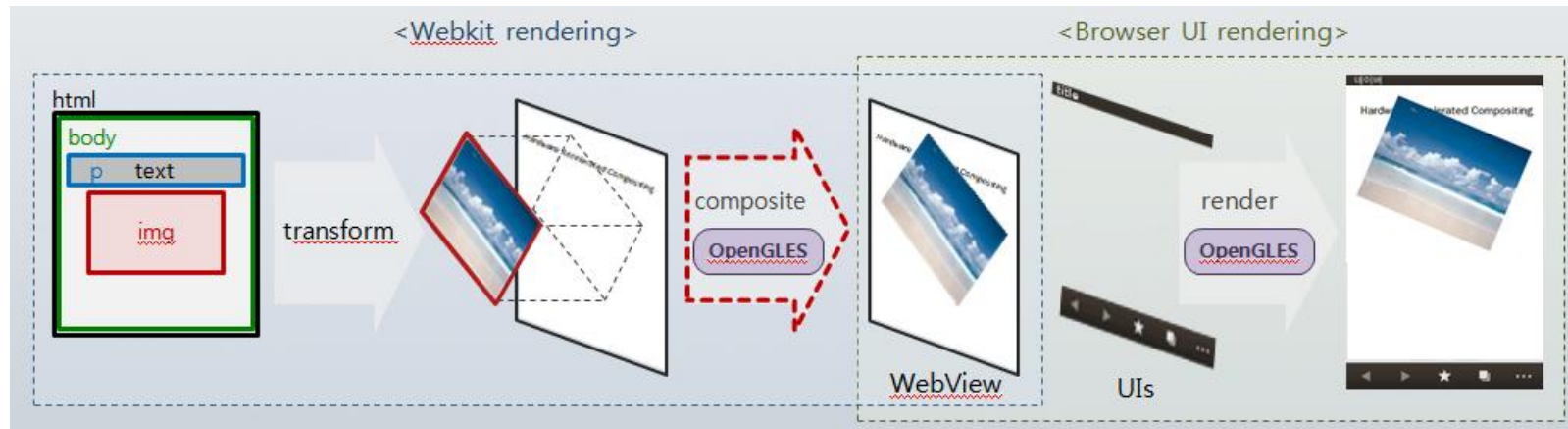
- No update is called when the tiles around the viewport have already been rendered



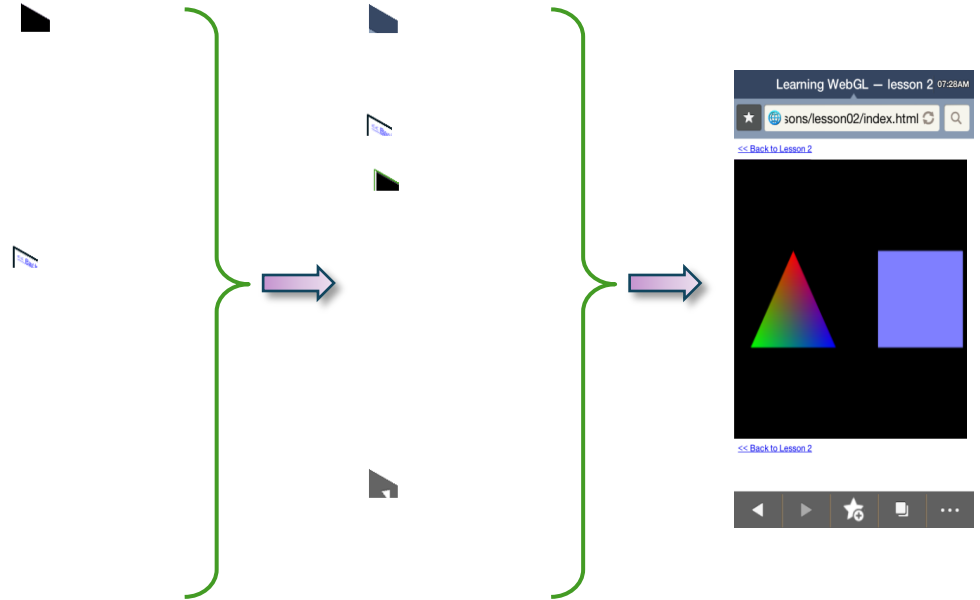
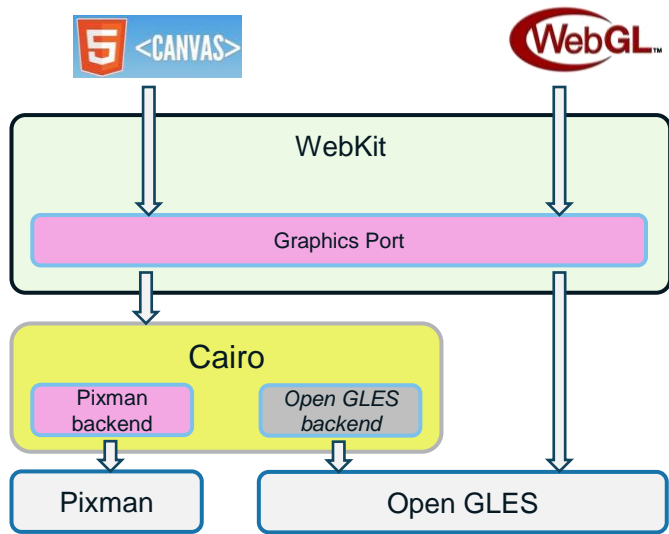
■ Tiles to be displayed in viewport

Accelerated Composition

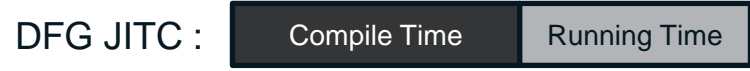
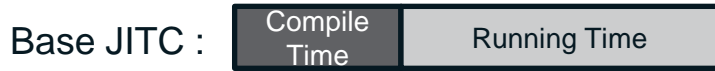
- When contents property is changed dynamically
 - Change position, rotation & size of the layer
 - Execute compositing only → No repainting



2D/3D Graphics



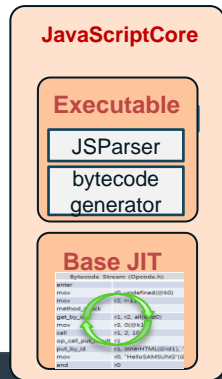
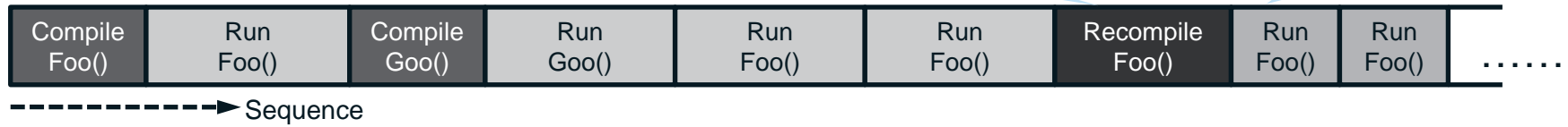
DFG JIT



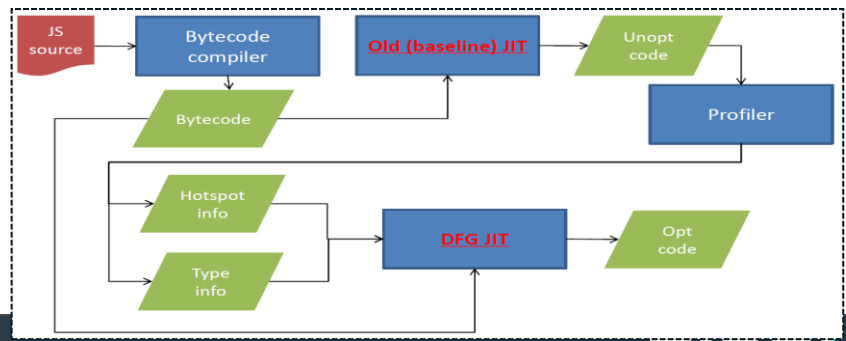
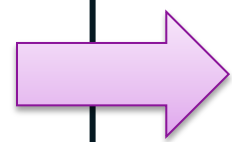
Conduct Base JITC at the beginning

Invoke DFG JITC when Hot spots are identified

Higher quality codes



Now | On The Roadmap

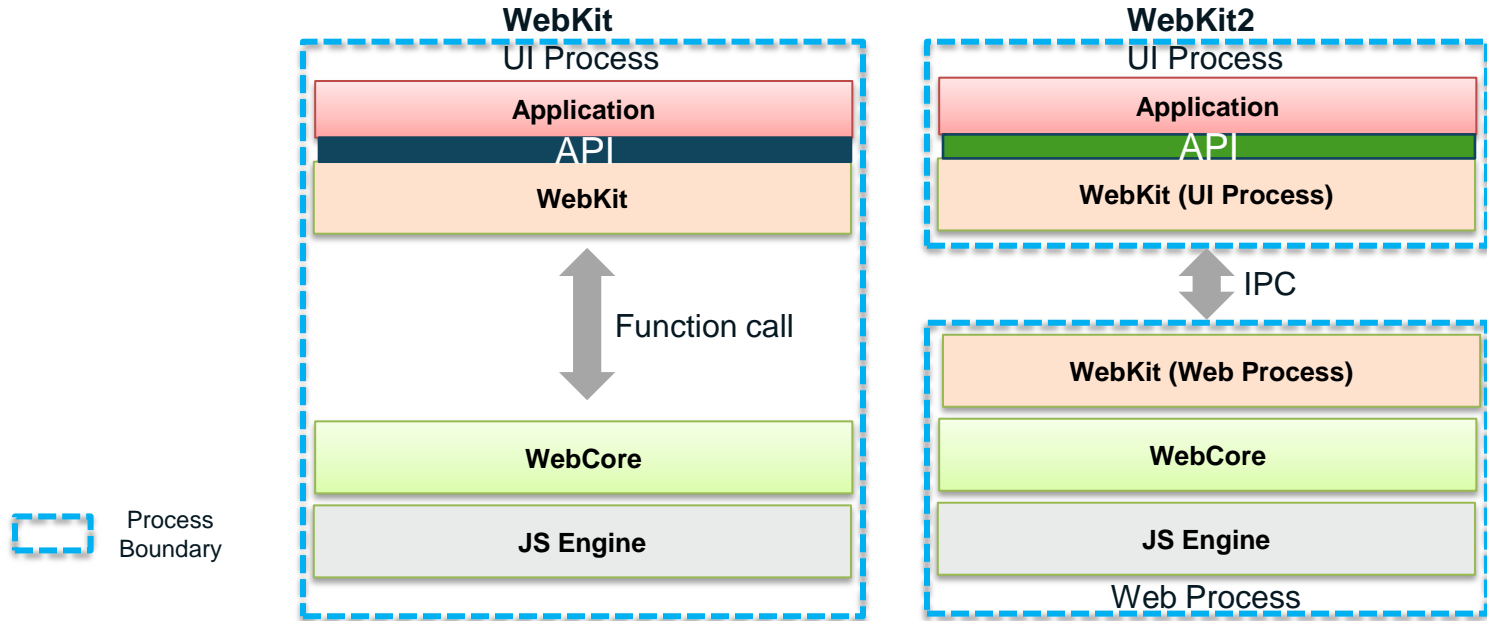


WebKit2/EFL

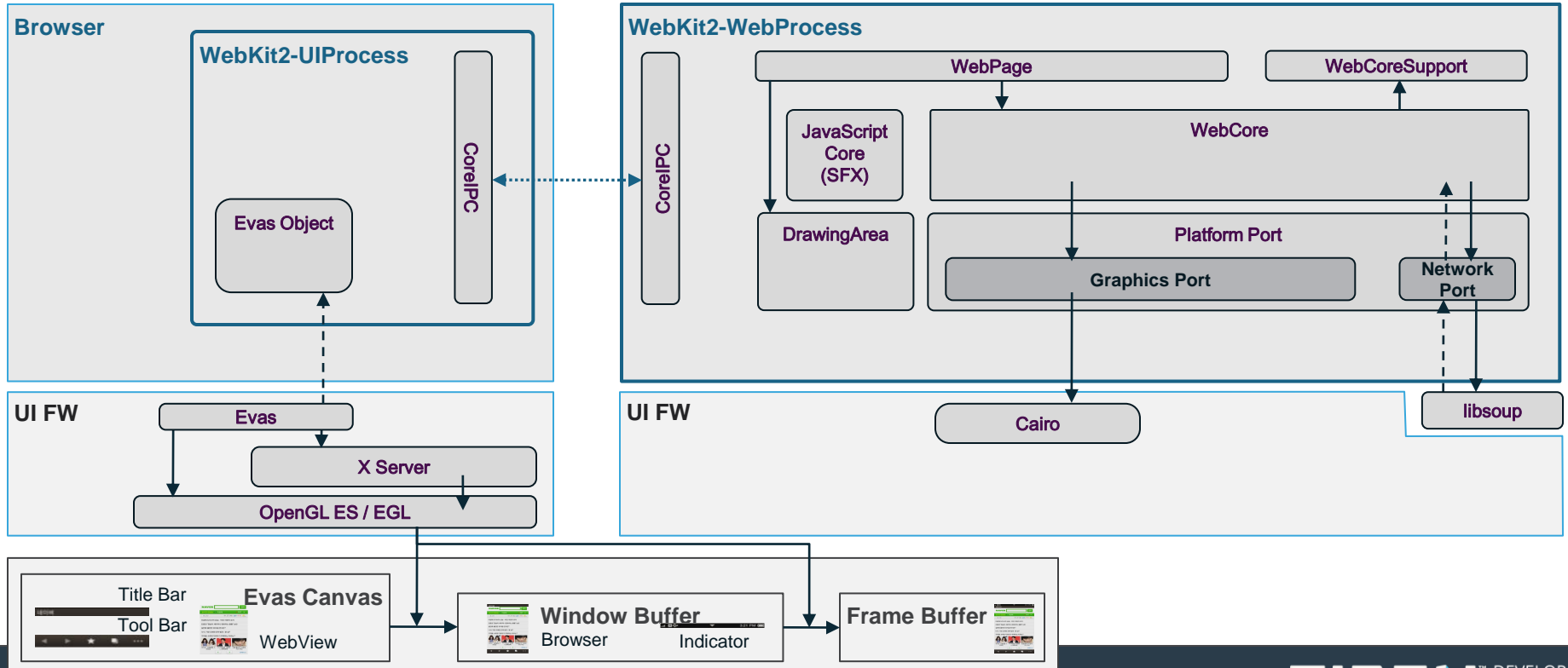
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WebKit vs. WebKit2

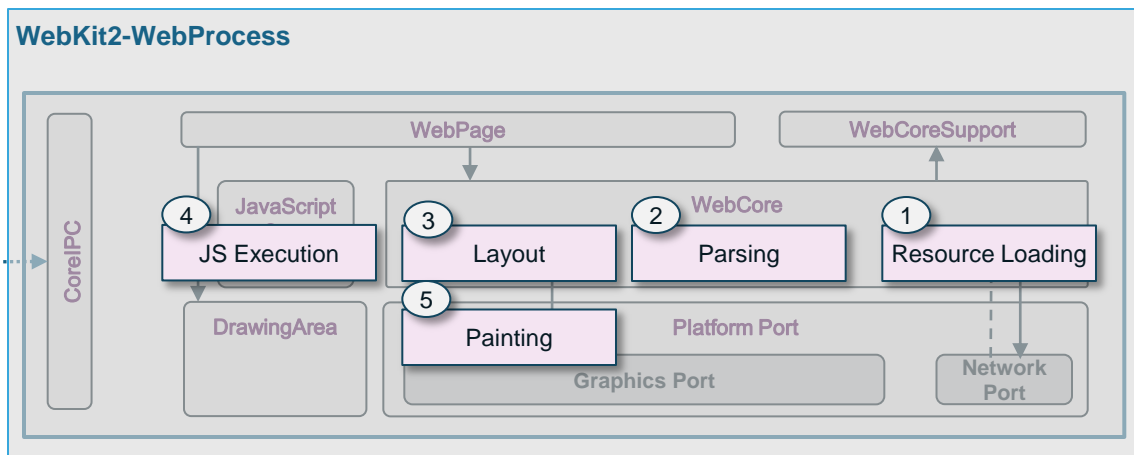
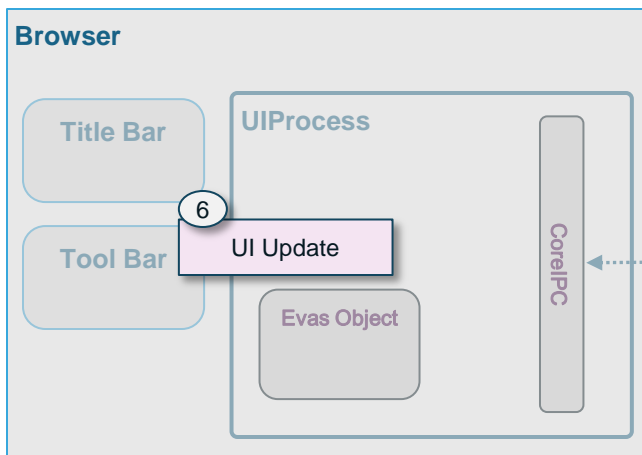
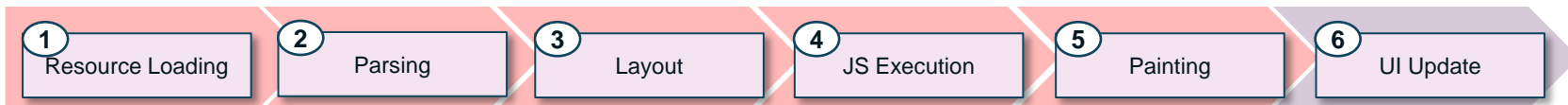
	WebKit	WebKit2
Process model	Single Process	Multi Process
API type	Blocking API	Non-blocking API



WebKit2/EFL Based Browser Architecture



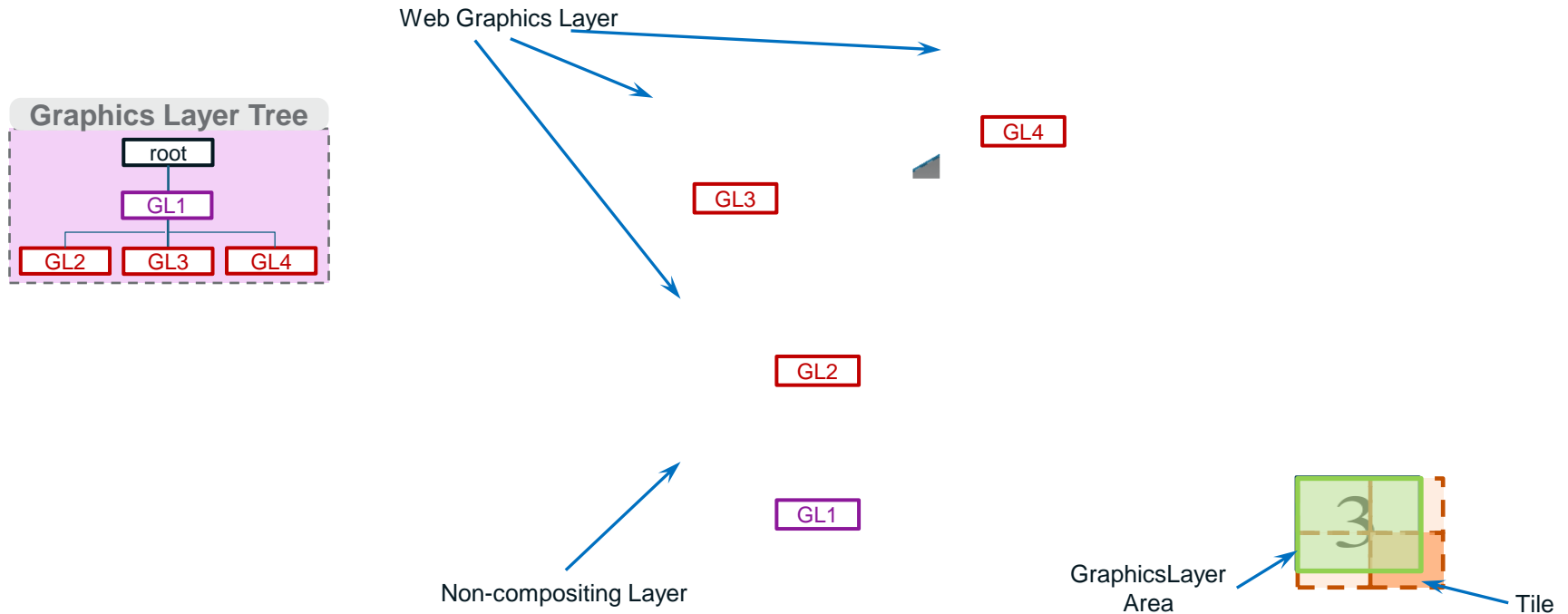
Job Distribution across Processes



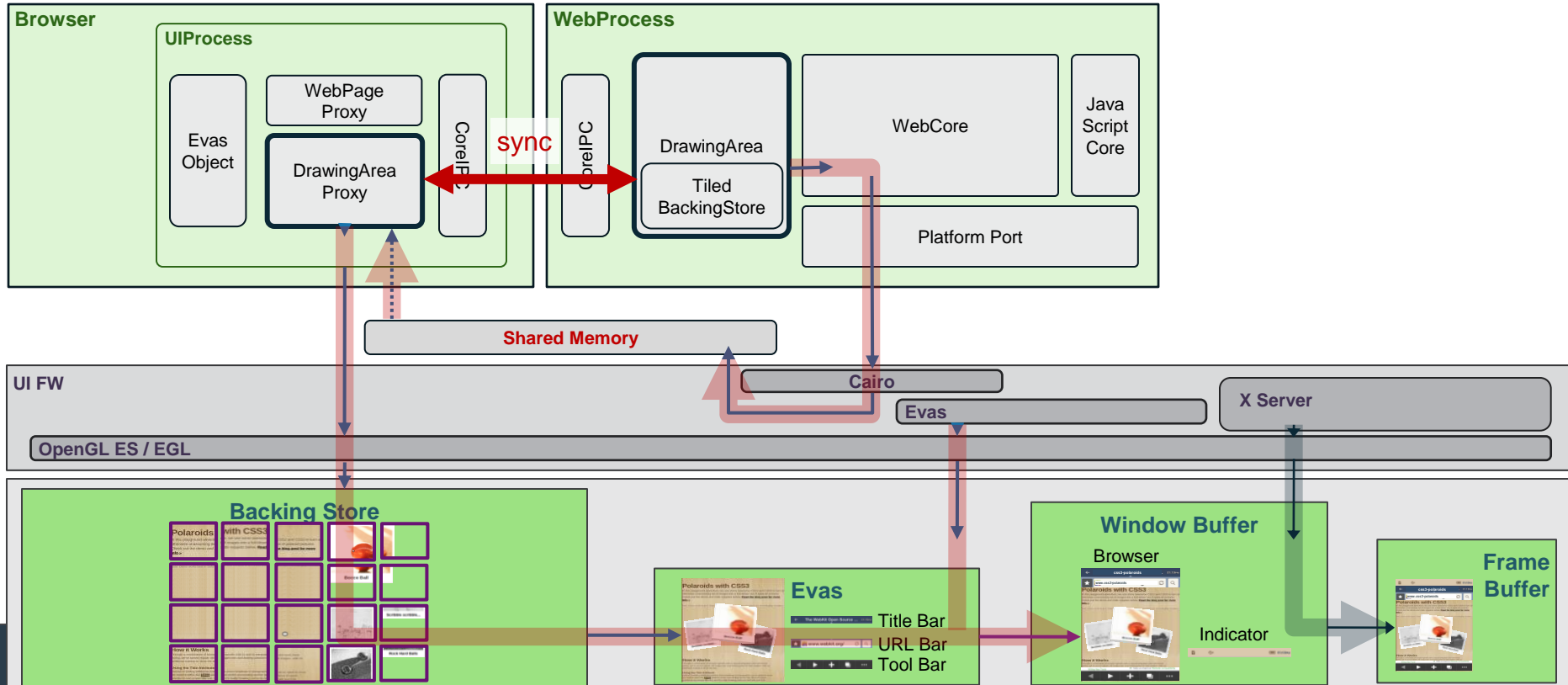
Benefit

- Sensitive touch response in UIProcess
- Frequent display update in UIProcess: 2-stage pipeline of ①~⑤ and ⑥

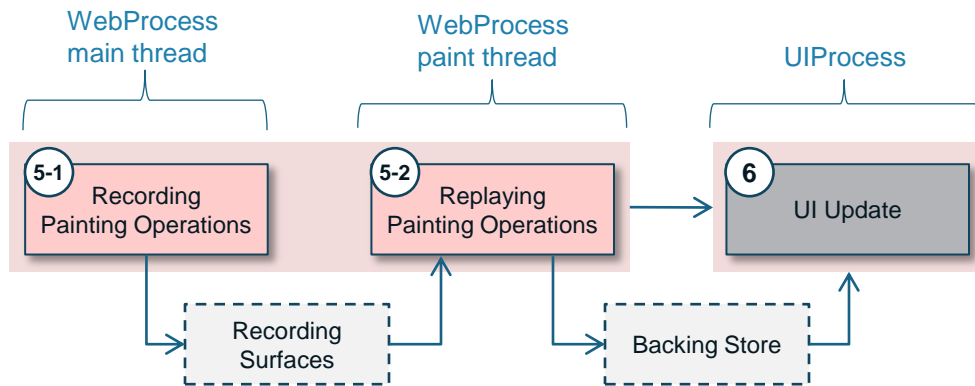
WebKit2 Tiled Accelerated Composition



WebKit2 Tiled AC: Rendering Flow



Painting Thread



Cairo Recording Surface → Painting Thread Separation
 Operation Cost: Recording \ll Replaying $<$ Painting



Even Faster Painting

Thank You.

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