

# OPEN WORLD FORUM

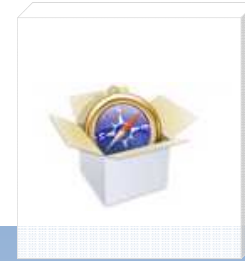
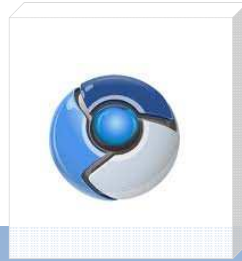
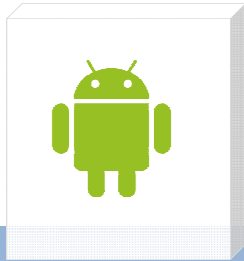
## Open Source WebKit Trends for Mobile

Mark Bapst, VP of Technology  
Qualcomm Innovation Center, Inc.  
October 1, 2010

**Open Is The Future**  
Open Innovation - Open Enterprise - Open Society

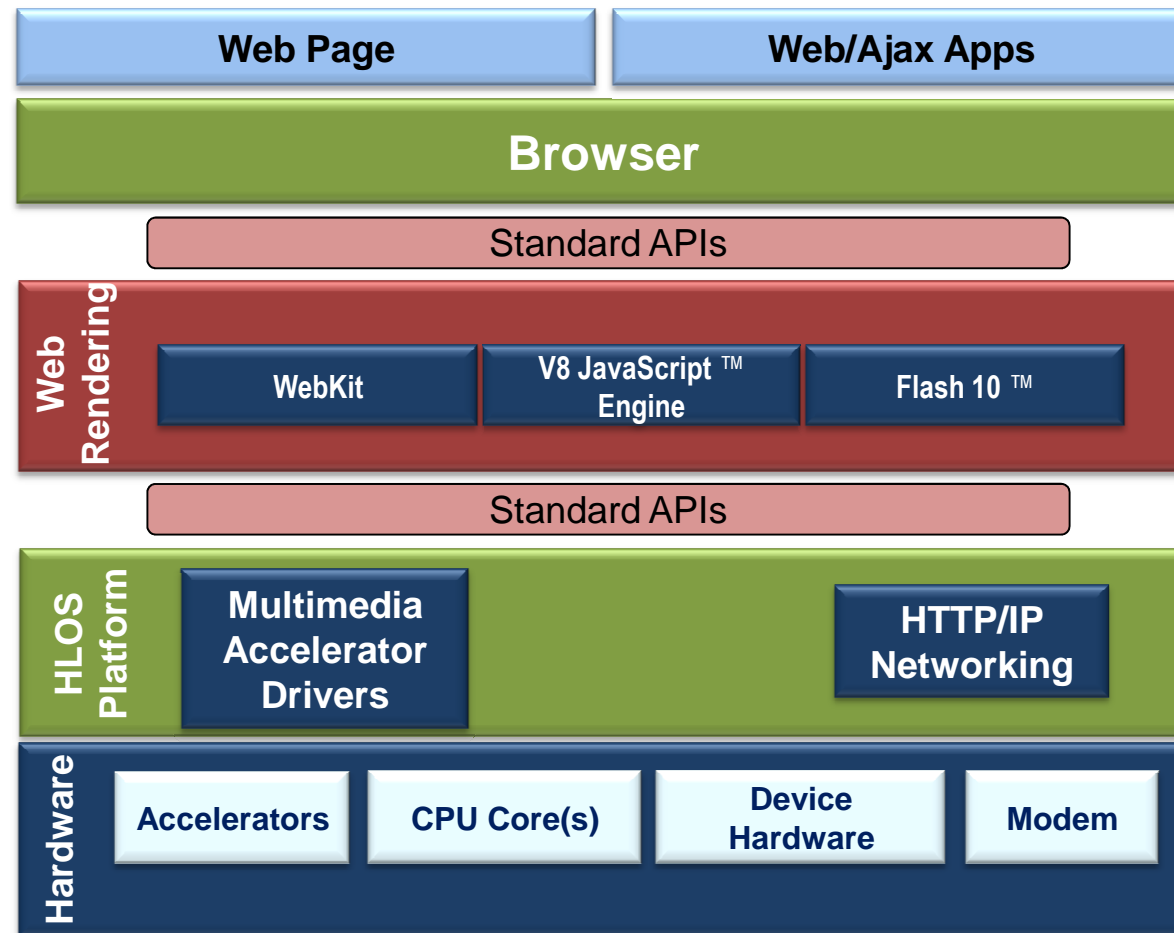


# Open Source Projects by QuIC



- Well-tested & integrated solutions
  - Compliance, field, stability, platform, multimedia etc.
- Reduced time to market
  - Help customers to launch quality products faster
- Runs better on Qualcomm chipsets
  - Optimized for power, performance, concurrency, quality and stability
- Contribute
  - Contribute changes back to the open source community to further enhance the platform

# QulC's Web Technology Strategy



# Trend: “HTML5” Driving Browser-Hardware Integration

- **Media**

- HTML5 Video, Audio
- DASH: HTTP Adaptive Streaming

- **Rendering**

- HTML5 Image, Canvas
- CSS3 animations
- SVG
- WebGL™

- **Composition**

- GPU Accelerated Composition

- **Device APIs**

- Camera, Geolocation, Sensors, ...

- **Possible Issue: Open standards such as W3C moving too slowly**

- Likely to drive proprietary extensions (and short term fragmentation)

# Trend: Multi-CPU

- **Core Technology Challenges**
  - WebKit is not thread safe and architecture makes parallelization hard
  - V8 (Javascript JIT) is non-reentrant
- **WebKit2**
  - Apple® driven solution for multicore, which splits the web engine into its own process and leaves the UI in the main for better application responsiveness
- **V8 Isolates**
  - Thread-safe Javascript JIT for Web Workers
- **Browser Level Approaches**
  - Async tiled backing store
  - Async image decoding

# Trend: Increased Open Source Collaboration

2003 – Apple releases KHTML derived Webkit

- Scalable engine
- Fast pace of development
- Seeds of a scalable project

2010 – Social change

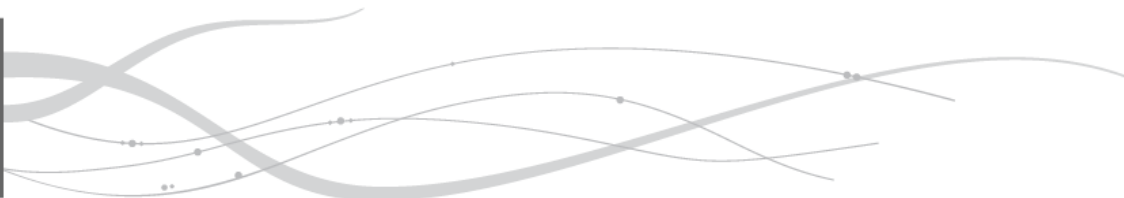
- Distributed version control enabling new types of development
  - Cross-company, worldwide, virtual & shared
  - Share the core technology & customize on top
- High quality maintained with detail to each step
  - Bug tracking systems
  - Clear roles & responsibilities
  - Mailing list discussion before, during, and after development

Catalyst for change

- Nokia, Google™, Adobe®, Palm®, RIM all adopt the core
- Project gives itself rules, roles, procedures
- Ex: Contributor, committer, reviewers

# Summary

- **QulC actively contributes to several open source projects**
  - Android, Chromium, WebKit, etc.
- **QulC's is assisting the WebKit trends for several mobile browsers**
  - Hardware Acceleration
    - For rendering, composition, user experience, and webapp access to device APIs
  - Multicore
    - Browser, Javascript and WebKit rendering
  - Collaboration
    - WebKit benefits from >100 active contributors and has a patch check-in every ~9 minutes (on avg)!



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