Rendering Quality in WebKit's Open Source Graphics Stack

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About

• WebKit Software Engineer @ Intel Finland, OTC
• WebKit Committer
• Specialized in Tizen WebKit’s Graphics Backend
In this talk

- Define rendering quality
- WebKit's 2D rendering stack
- Improvements to Tizen WebKit's rendering quality
Rendering Quality

- Site looks "as intended by the author"
- Text & graphics look accurate & pleasant
  - Sharp
  - Readable
  - Regular spacing & layout
- No glitches, artifacts, gaps, irregularities
"Looks as intended" = Consistency

- across platforms and devices
- across browsers
- across different screens
- with look & feel of the operating system
Great looking fonts and graphics create a great user experience.
## WebKit Graphics Stacks

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<th>Font &amp; Metrics</th>
<th>Text Shaping</th>
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**WebCore**

**WebKit API**

**2D Graphics**

**Fonts & Metrics**

**Text Shaping**
What could possibly go wrong?

- (Downloadable) Fonts
- Shadows
- Layout, Scaling and Zooming Precision
Font Selection & Font Antialiasing
Web Fonts & Complex Font Support
Shadows in CSS and SVG
Baseline Positioning of Text
Sphinx

baseline

descent

x-height
Artifacts on Reflections
Fractional Units in Layout

![Fractional Units Graphic]

Fractional Units Gone Wrong
Fractional Units Gone Wrong

Sub-pixel Layout to the Rescue

Keeps account of fractional layout values

Takes into account zooming and scaling

Lays out web page with fractional precision

Renders snapped to device pixels
Sub-pixel Layout to the Rescue

- Keeps account of fractional layout values
- Takes into account zooming and scaling
- Lays out web page with fractional precision
- Renders snapped to device pixels
What needs to be done right?

- Font Selection
- Font Aliasing Settings
- Web Fonts & Complex Font Rendering
- Robust Graphics Backend
- Layout, Scaling and Zooming Precision
Great User Experience in Tizen WebKit

- High quality font rendering
- Complex font rendering for web fonts
- Improvements to Tizen WebKit's graphics backend
- Sub pixel layout for accurate scaling and zooming