Towards a web runtime for AGL based on Chromium/Wayland

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Agenda

- Why a web runtime?
- Technical challenges and design decisions
- Security vision
- Scope of the project
- Current status
- Questions and feedback

Why a web runtime?

- Web apps should be first class citizens in AGL: popular alternative to native toolkits; bring flexibility and power for a big number of developers.

- Share resources among web applications:
  - Hardware resources (e.g. GPU), network cache, etc.
  - Common strategy for memory pressure scenarios.

- Shared implementation between web applications:
  - Same stack for web apps and web browser.
  - Same expected behavior.

- Security enabled, efficient runtime:
  - Integration with SMACK and AGL binder

- Provide access to AGL specific APIs for the web apps.

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Technical challenges and design decisions

- Use Chromium architecture for web contents sandboxing:
    - Single browser process for web apps,
    - Web contents in sandboxed renderer process.

- Enable JS injection for domain specific APIs and system integration:
    - Also allow to side-load CSS and JS,
    - Access to car specific APIs.

- Provide web apps packaging and local filesystem installation/running.

- Rendering
    - Fullscreen
    - Optional/Future? Web popups and other window factors.
    - Hooks for integrating with system UI

- Lifecycle
    - Integration with apps lifecycle (suspend/resume…).

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Security vision

- Comply with AGL security model:
  - SMACK labels.
  - Cynara.
- Allow native application manager to manage WebApps.
  - For example, communication between WebApps and native application manager through a web runtime.

Scope of the web runtime project

This proposal is not related to:
- System UI implemented with web stack.
- Full-featured web browser

Web runtime is:
- The service that allows to implement applications using web technologies.

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Current status

- Igalia has just started working on this: currently in the analysis&design phase.

- Intention: prototyping phase starting during late Q2 and heavy development during H2 2018 (we are trying to secure the required resources).

- The plan is to reuse as much as possible from available open source web runtimes to reduce the development time (e.g. WAM by LGE?).

- Still unclear the amount of effort that this will require (will depend on several design decisions and on the amount of reuse).

- The idea is to work completely in the open, with both open source development tools and dynamics from day 1.

- Feedback and collaboration are very welcome.

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Questions?

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