

HTML5 apps on AGL platform, status update

Tokyo F2F – July 2019

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Summary of the goals for 2019

Goals for 2019

- Identified several aspects that required more work:
 - Continuous stabilization and maturity. Needed to maintain integration into Guppy/Halibut/Icefish, and fix and improve several components.
 - Finalize the replacement of pending Qt basic data structures.
 - Keep updating Chromium/WAM with any updates from WebOS, and reduce the delta with upstream.
 - Review memory management and integration of app lifecycle.
 - Targeting to full HTML5 demo.



Goals for 2019

- **Chromium:**

- Rebase latest submissions from WebOS Chromium WebView.
- Upstream the AGL changes into LG repositories.
- Update to more recent Chromium version expecting some 7x codebase upgrade.
- Additional bugfixing and performance improvements.
- Better IPC for communication between WAM launcher and browser process.

Goals for 2019

- **Web Application Manager:**

- Rebase latest commits available at upstream WAM.
- Remove pending Qt dependencies.
- Adaptation of WAM into new HMI architecture.
- Launcher process permission control (SMACK permissions holder):
 - Defining a new protocol communication between launcher and browser process and lightweight proxy implementation.
 - Review token logic for HTML5 apps and remote clients/apps.
- Integration with the new Pipewire audio framework.
- Application life cycle on WAM with the AGL life cycle and memory management.

Milestones - M1

M1 – Automotive Linux Summit – July 17, 2019

- a) Guppy integration stabilized for 7.0.3 release **DONE**
- b) Uprev of WAM to Yocto 2.6 (thud branch) released on Happy Halibut using Chromium 68 as the baseline **WIP**
- c) AGL guppy branch fixes upstreamed to LG WebOS OSE repository **DONE**
- d) Removal of all Qt dependencies for WAM **DONE**
- e) Initial integration with audio framework depending on the timing of PipeWire availability **WIP**
- f) Initial set of demo Web Apps released **DONE**

Milestones - M1

Stabilization on Guppy/Halibut:

- More complex than initially expected, due to the bigger amount of modifications included in Halibut, including changes in the toolchain.
 - [SPEC-2506] Linking error against symbol `ff_h264_idct_dc_add_neon'
 - [SPEC-2514] Build error in chromium68: libc_nonshared.a: error adding symbols
 - [SPEC-2532] Link error in WAM: undefined reference to `ilm_init'
 - [SPEC-2586] Redundant systemd instance makes WAM and homescreen crash
 - [SPEC-2602] Chromium68 build fails in the installation step
 - [SPEC-2612] Chromium browser crash - failed to connect display

Milestones - M1

Removal of Qt dependencies for WAM:

- Now completely finished and merged.
- [SPEC-1871] [meta] Qt-less WAM
 - [SPEC-1911] Qt-less WAM: replace qt basic data structures
 - [SPEC-1914] Qt-less WAM: move from QMake to Cmake
- To create a complete Qt-less image, we need to ensure that other components can be compiled without the dependency.

Milestones - M1

Updating to newer versions and upstreaming:

- [SPEC-2307] Upstream AGL fixes into WebOS OSE upstream repositories.
 - <https://github.com/webosose/chromium68/pull/14>
 - <https://github.com/webosose/wam/pull/19>
- Also including Qt-less changes, now ready for review and integration by LG side.

Milestones - M1

Integration with the audio framework:

- [SPEC-2343] Integrate Chromium/WAM with Pipewire
 - Before current Pipewire was available, as a previous step, started looking into the integration of 4a framework on Guppy.
 - Using ALSA output and looking into native Pipewire support on Halibut.
 - Progress got delayed due to the WAM/Chromium stabilization issues.

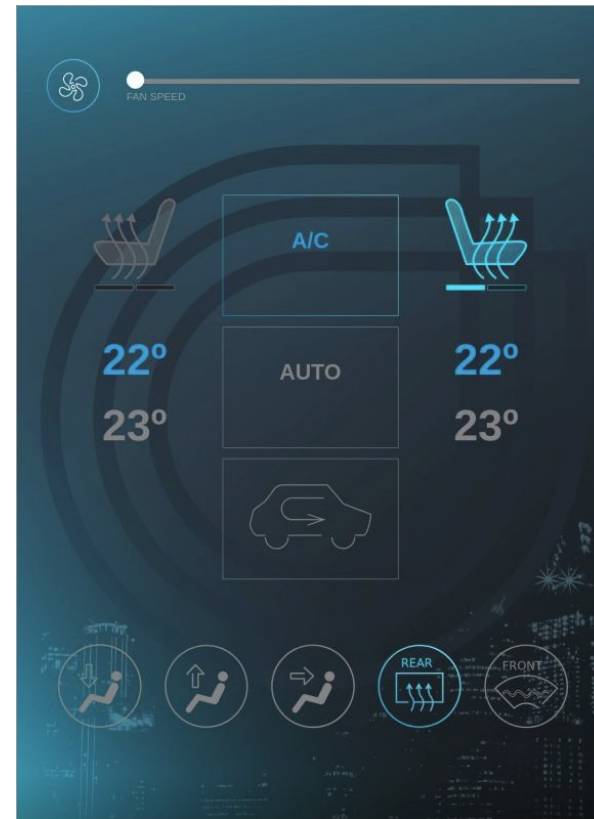
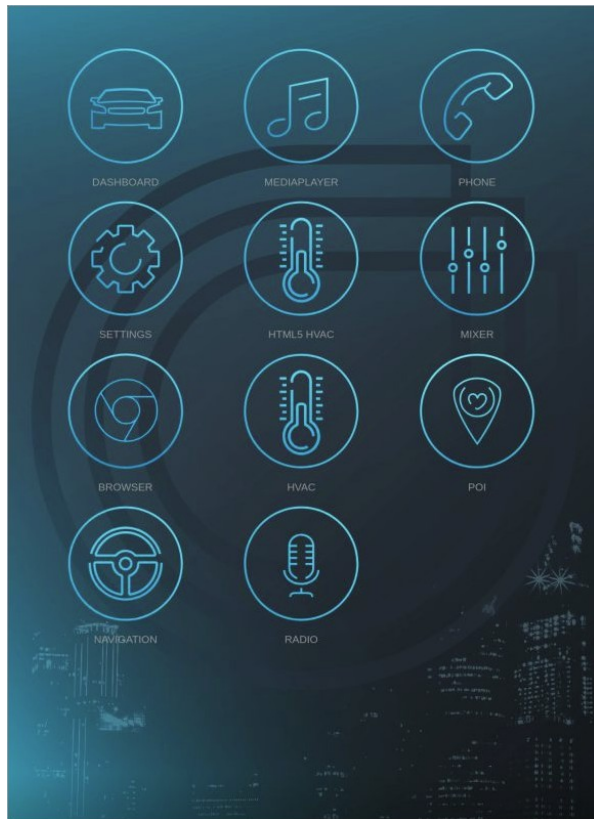
Milestones - M1

Implementation of demo webapps:

- [SPEC-2401] Create HTML5 homescreen and launcher
 - <https://github.com/jaragunde/agl-html5-launcher>
- [SPEC-2322] [meta] Define HTML5-only demo layer
 - Still in progress to have homescreen app, which also requires to patch windowmanager to change dimensions for a horizontal view.
- [SPEC-2645] Create HTML5 demos
 - <https://github.com/jaragunde/agl-html5-hvac>

Milestones - M1

Implementation of demo webapps:



Milestones - M1

Implementation of demo webapps:

- Other apps to be ported next would be settings, radio, mixer, mediaplayer and dashboard.
- Not focusing for now on any review of the current UI.
- Pending elaboration of documentation to facilitate integration of new webapps into AGL.

Milestones - M1

Some other tasks on the period:

- Importing performance improvements
 - [SPEC-2226] Backport Chromium-Wayland upstream patches
- Fixing issues with the remote inspector
 - [SPEC-2328] Update the path for Remote Web Inspector.
 - [SPEC-2327] Remote Debugging should work only on debug mode

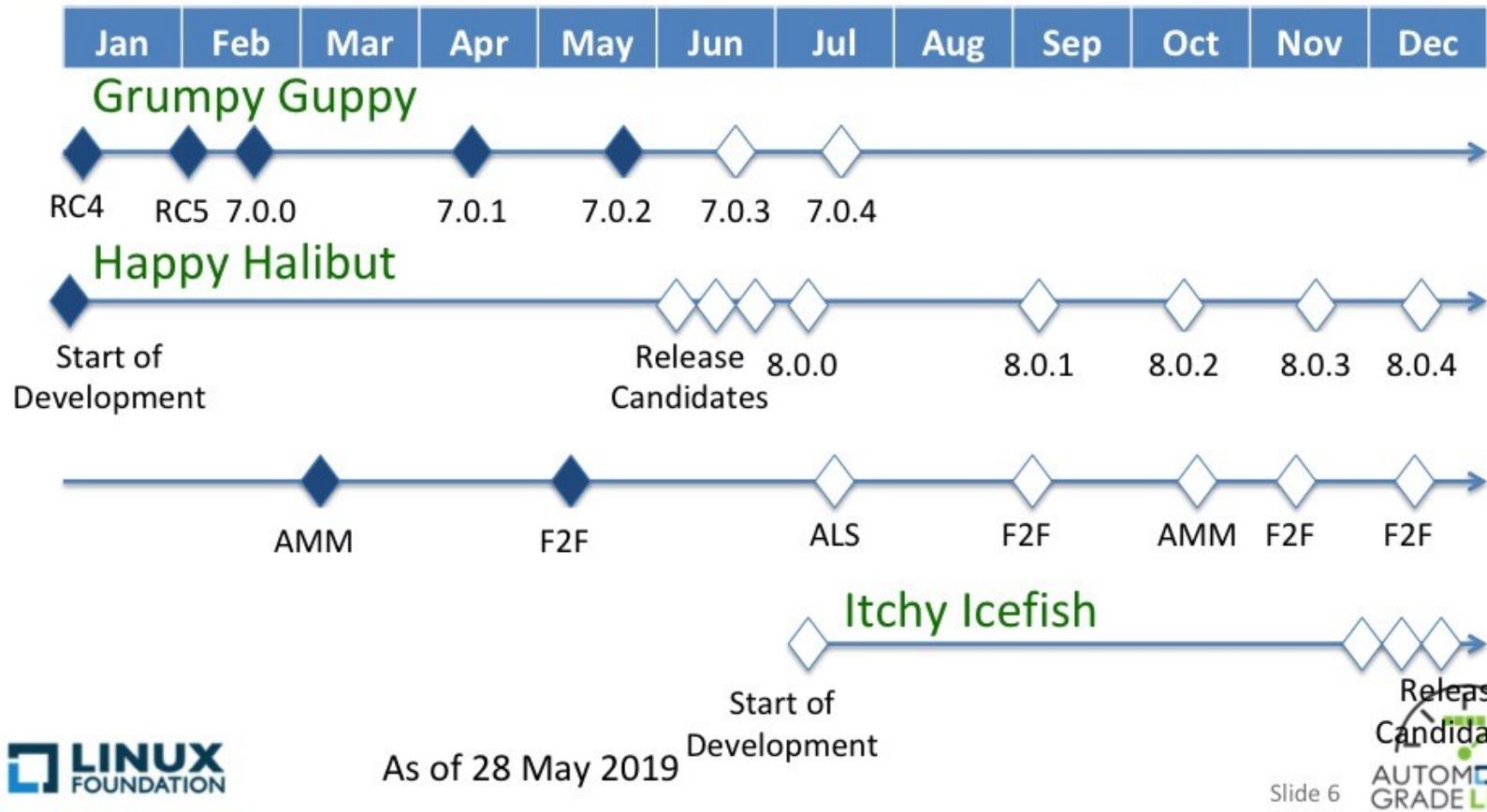
Milestones - M1

Follow-ups for the next milestone:

- Changes on the security model, replacing the approach of using SMACK based tinyproxy
 - [SPEC-2226] Use Token-based logic for HTML5 apps
- Continue stabilization and updating, and addressing pending open issues
 - [SPEC-2627] Slow start of WAM after booting

Plans for 2019

2019 AGL Schedule



Milestones - M2

M2 – Fall F2F meeting – September 15, 2019

- a) Port of WAM to desktop environment based on Happy Halibut release to allow for CES web app development.
- b) Pending work of the integration with Pipewire.
- c) Second release of demo Web Apps available.

Milestones - M3

M3 – Itchy Icefish RC1 – November 22, 2019

- a) Final Release Candidate of WebOS OSE, Web App Manager, and Chromium available in RC1 and ready for AGL CES demos to be held in January.
- b) Third release of demo Web Apps available.
- c) Revised Roadmap for 2020 development for Web App Manager, and Chromium.



Milestones - M4

M4 – Final Release – January 31, 2020

- a) Final Release for Itchy Icefish of Web OSE, Web App Manager, and Chromium.
- b) Complete set of HTML5 demo apps to replace Qt Apps in primary AGL demo for CES 2020.

Discussion