Web Application Manager + Chromium Embedded Framework
Current web runtime architecture

- The existing architecture approach of the AGL web runtime, is based on the adaptation of the Web Application Manager (WAM) + modified Chromium versions from WebOS by LG
  - [https://github.com/webosose/wam](https://github.com/webosose/wam)
  - [https://github.com/webosose/chromium84](https://github.com/webosose/chromium84)
- They are connected through a custom libcbe library
Current web runtime architecture

- Current approach has been working successfully but has some limitations
  - Big dependency on the release cycle from LG, which upgrades between certain Chromium versions (68, 72, 79, 84), which are available with significant delay after the upstream releases.
  - Cost of maintenance as we have to port the AGL specific changes, mostly into the Chromium repository.
  - Changes as integrations with the compositor, WAM Qt dependencies removals, etc.
Current web runtime architecture

• As a simplification of the current architecture WAM can be considered a small layer over a modified Chromium version, to provide the capacity to integrate webapps, lifecycle, security, etc.

• Most of the changes happen inside Chromium repository to keep the APIs working on libcbe to be used by WAM.

• This is the problematic that CEF specifically is designed to address.
Current Web Runtime on AGL architecture

HMI Layer

HTML5 homescreen  Webapp 1  Webapp n  Connected Web services

Web Application Manager (WAM)
- Application Lifecycle support
- Security model integration
- Window manager events

libcbe

WebOSE Chromium

Chromium

AGL App Framework Layer

Services and OS Layers
CEF state of the art

- Chromium Embedded Framework (CEF)
  - https://github.com/chromiumembedded/cef
  - Consolidated framework designed specifically for embedding Chromium and widely adopted by multiple upstream projects.
  - Has been getting improvements on Ozone/Wayland support.
  - Synced with fresh Chromium release channels.
WAM + CEF

• The proposal would be to adapt WAM to use directly CEF instead of WebOS/Chromium.

• This would allow the Web Application Manager to get upstream independency, and improve its capacity to be used in more contexts.

• Simplification of the maintenance, as the majority of the work would be needed on WAM (which is smaller) and it’s connection with CEF APIs.
Web Runtime on AGL architecture using CEF

HMI Layer

HTML5 homescreen  Webapp 1  Webapp n  Connected Web services

Web Application Manager (WAM)
- Application Lifecycle support
- Security model integration
- Window manager events

Chromium Embedded Framework (CEF3)
- Chromium Content API

AGL App Framework Layer

Services and OS Layers