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/chromium84

 - They are connected through a custom libcbe library

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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.

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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
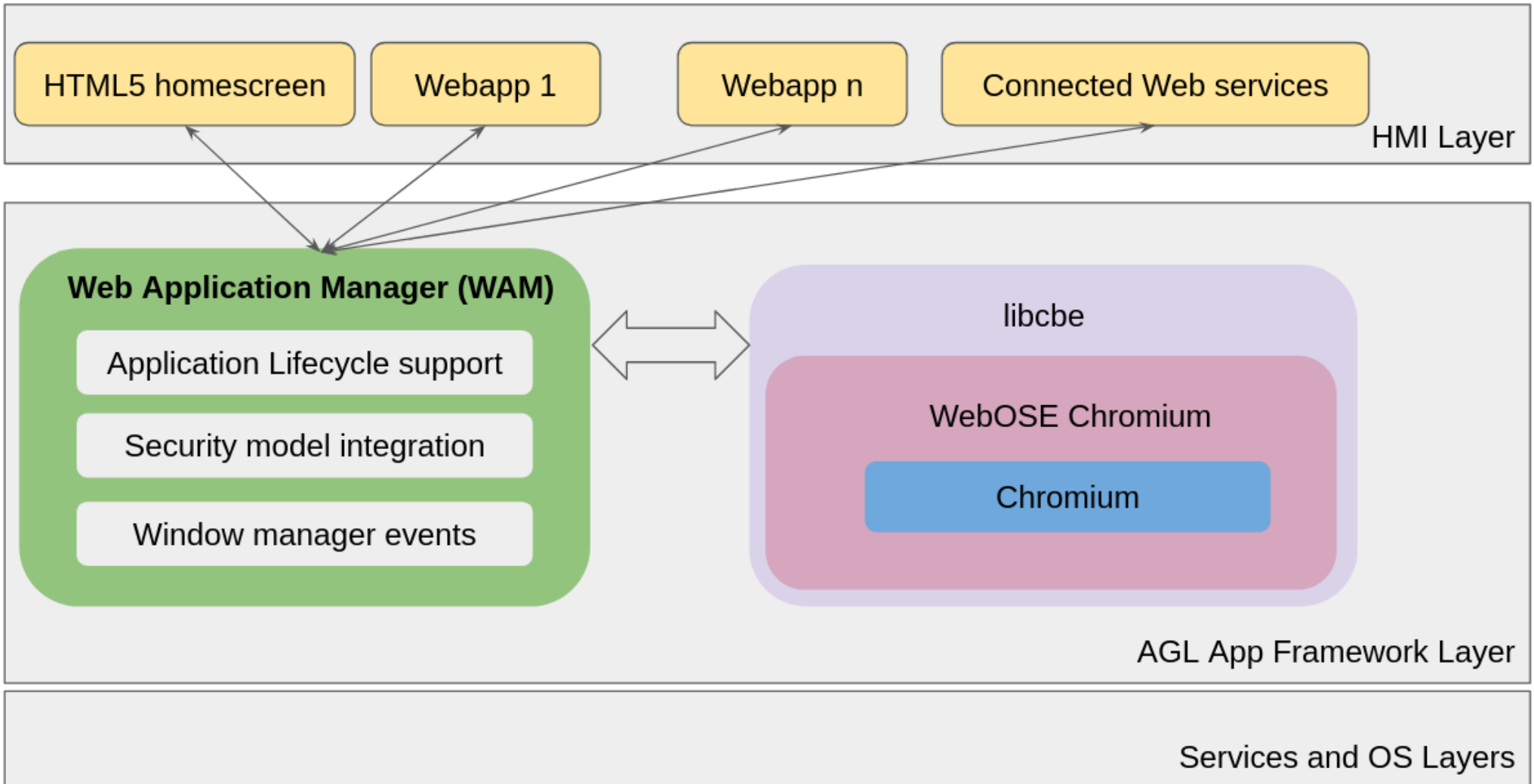
CEF state of the art

- 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.

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Web Runtime on AGL architecture using CEF

HMI Layer

- HTML5 homescreen
- Webapp 1
- Webapp n
- Connected Web services

AGL App Framework Layer

Web Application Manager (WAM)

- Application Lifecycle support
- Security model integration
- Window manager events

Chromium Embedded Framework (CEF3)

Chromium Content API

Services and OS Layers

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