

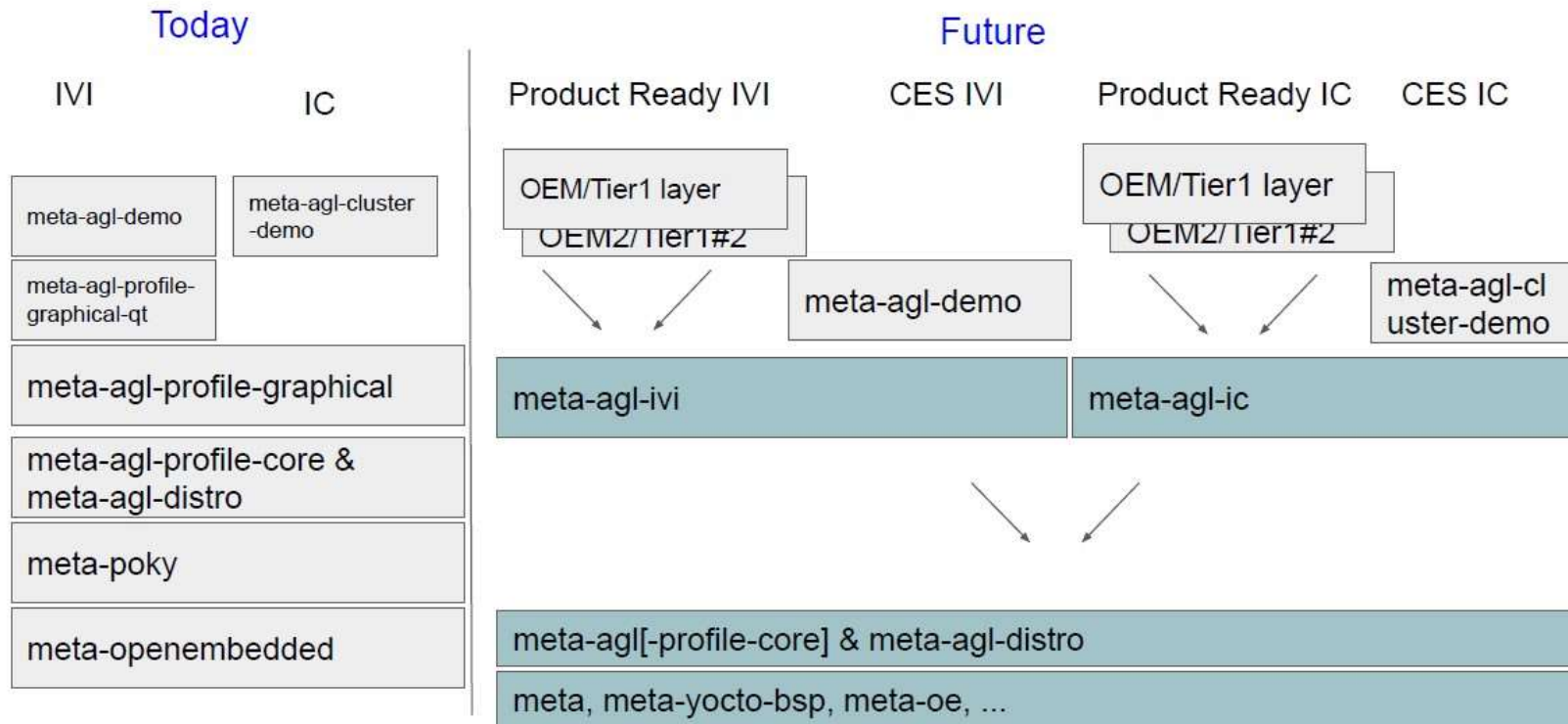


# AGL Layer Design - Rethink

Tadao Tanikawa @ AGL Developer Community

# Basically, I agree with

## Layers required to build devices

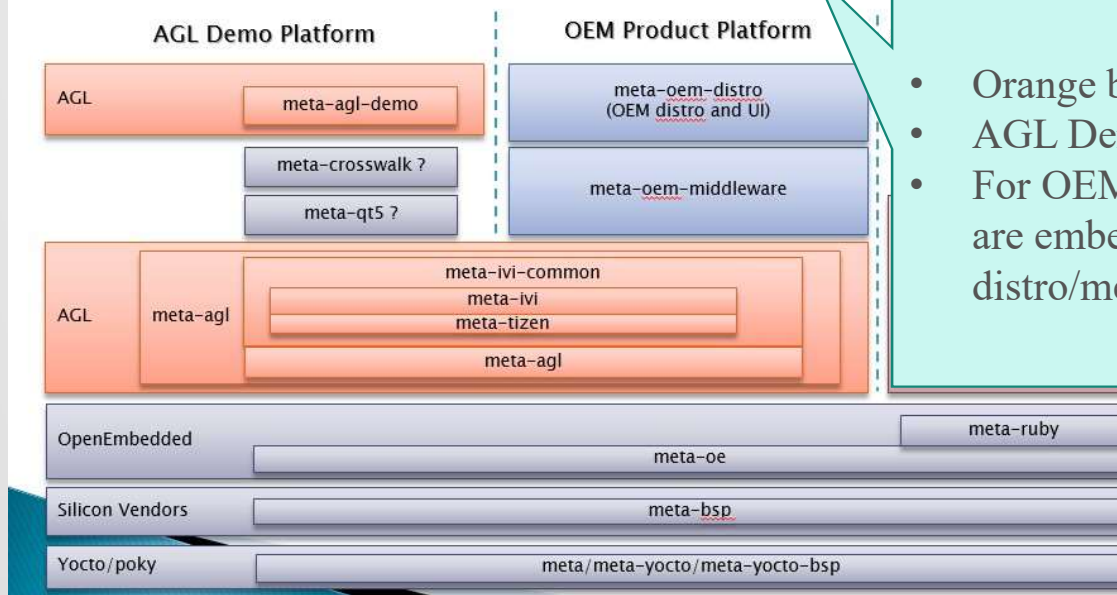


# Originally, it was very simple

## AGL Layer Design

Slide created at 2015/06/22

- オレンジの箱の範囲が、AGL Distribution
- AGL Demo Platformがリファレンス実装
- OEM製品では、独自のフレームワークやproprietaryなソフトウェアが搭載される想定



- Orange boxes are included in AGL Distribution
- AGL Demo Platform is a reference implementation of AGL
- For OEM products, own framework or proprietary software are embedded to own meta-layers (e.g. meta-oem-distro/meta-oem-middleware)

**Proposed layers are similar to this**

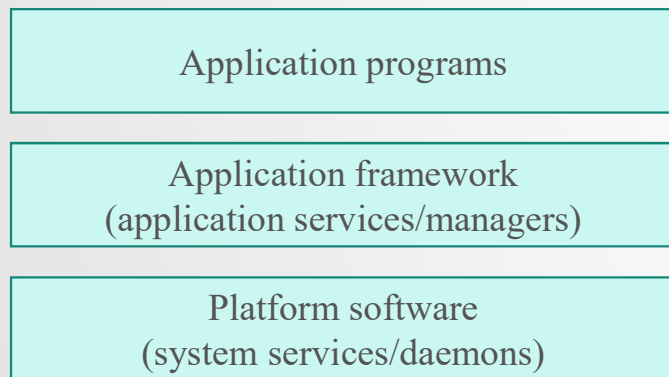
# A study: What is product readiness of AGL?

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- Goal: reducing cost of delivering OSS to products
  - What is major issues?
    - Functionality
    - Quality
- GAP from functionality point of view
  - Missing features for automotive use cases
  - Missing functions to implements those missing features.
- To fill these gaps, roughly 2 ways
  - Extend existing software → Re-use existing OSS and modify it
  - Develop new software → Create OSS projects inside/outside AGL UCB

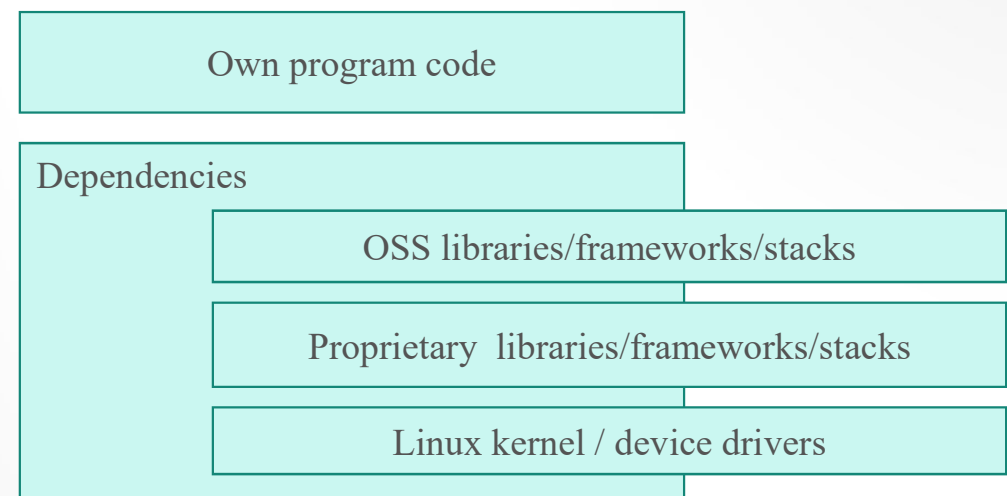
# Basic software integration architecture

Software stack



Defined by AGL layers

Software structure



Defined by AGL (bitbake) recipes  
Selected by AGL features

# Today's AGL layers, meta-agl-xxx

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- bsp
- build
- external
- meta-agl
- meta-agl-cluster-demo
- meta-agl-demo
- meta-agl-devel
- meta-agl-extra
- meta-agl-telematics-demo

- meta-agl
- meta-agl-bsp
- meta-agl-distro
- meta-agl-profile-cluster
- meta-agl-profile-cluster-qt5
- meta-agl-profile-core
- meta-agl-profile-graphical
- meta-agl-profile-graphical-html5
- meta-agl-profile-graphical-qt5
- meta-agl-profile-hud
- meta-agl-profile-telematics
- meta-app-framework
- meta-netboot
- meta-pipewire
- meta-security

***Difficult to understand***

# Today's AGL features

Available features:

```
[meta-agl]
agl-all-features :( agl-demo agl-appfw-smack agl-hmi-framework agl-profile-graphical-qt5 agl-profile-graphical agl-pipewire agl-speech-framework agl-netboot )
agl-appfw-smack
agl-archiver
agl-buildstats
agl-ci
agl-ci-change-features :( agl-demo agl-appfw-smack agl-hmi-framework agl-profile-graphical-qt5 agl-profile-graphical agl-pipewire agl-speech-framework agl-devel agl-netboot agl-pipewire agl-buildstats agl-ptest )
agl-ci-change-features-nogfx :( agl-demo agl-appfw-smack agl-hmi-framework agl-profile-graphical-qt5 agl-profile-graphical agl-pipewire agl-speech-framework agl-devel agl-netboot agl-pipewire agl-buildstats agl-ptest )
agl-ci-snapshot-features :( agl-demo agl-appfw-smack agl-hmi-framework agl-profile-graphical-qt5 agl-profile-graphical agl-pipewire agl-speech-framework agl-devel agl-netboot agl-archiver agl-pipewire agl-buildstats agl-ptest )
agl-ci-snapshot-features-nogfx :( agl-demo agl-appfw-smack agl-hmi-framework agl-profile-graphical-qt5 agl-profile-graphical agl-pipewire agl-speech-framework agl-devel agl-netboot agl-archiver agl-pipewire agl-buildstats agl-ptest )
agl-devel
agl-egvirt
agl-fossdriver
agl-gplv2
agl-hmi-framework
agl-netboot
agl-pipewire
agl-profile-cluster :( agl-profile-graphical )
agl-profile-cluster-qt5 :( agl-profile-graphical-qt5 agl-profile-graphical )
agl-profile-graphical
agl-profile-graphical-html5 :( agl-profile-graphical )
agl-profile-graphical-qt5 :( agl-profile-graphical )
agl-profile-hud
agl-profile-telematics
agl-ptest
agl-sign-wgts
agl-sota
agl-virt
agl-virt-guest-xen
agl-virt-xen :( agl-virt )
agl-weston-remoting :( agl-profile-graphical )
[meta-agl-cluster-demo]
agl-cluster-demo :( agl-profile-cluster-qt5 agl-profile-graphical-qt5 agl-profile-graphical agl-hmi-framework )
agl-cluster-demo-preload
[meta-agl-demo]
agl-cloudproxy
agl-cluster-demo-support :( agl-weston-remoting agl-profile-graphical )
agl-demo :( agl-appfw-smack agl-hmi-framework agl-profile-graphical-qt5 agl-profile-graphical agl-pipewire agl-speech-framework )
agl-demo-preload
agl-demo-soundmanager :( agl-appfw-smack agl-hmi-framework agl-profile-graphical-qt5 agl-profile-graphical agl-audio-soundmanager-framework )
[meta-agl-devel]
agl-jailhouse
agl-speech-framework
agl-voiceagent-alexa :( agl-speech-framework )
agl-voiceagent-alexa-wakeword :( agl-voiceagent-alexa agl-speech-framework )
[meta-agl-extra]
agl-localdev
[meta-agl-telematics-demo]
agl-telematics-demo :( agl-profile-telematics )
```

**Difficult to understand**

# Goals of integration of IVI ProductReady Trial/1<sup>st</sup> release

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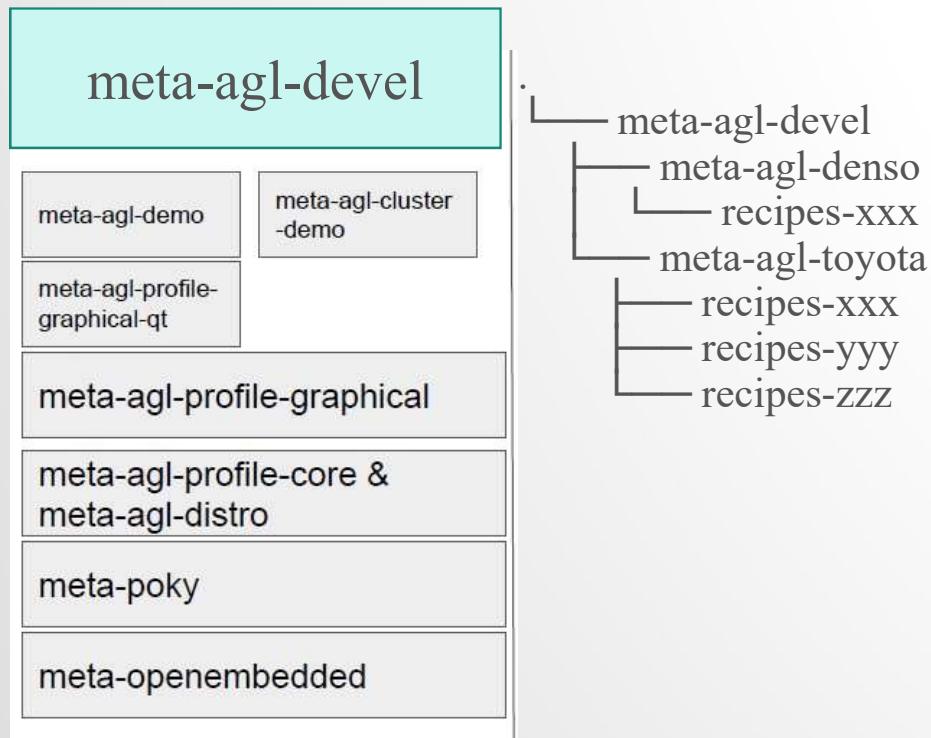
- IVI ProductReady Trial
  - Re-use existing AGL UCB (means keeping Today's layers)
    - Adding RBA from DENSO
    - Adding BaseSystem's components from TOYOTA
    - Adding Test applications/services to evaluate several features (e.g. basesystem components/RBA/...)
- 1<sup>st</sup> Release
  - Improve / Relace exising AGL components (Assuming new design)
    - AppFw?
    - App Services? (e.g. BT / Radio)
    - ...



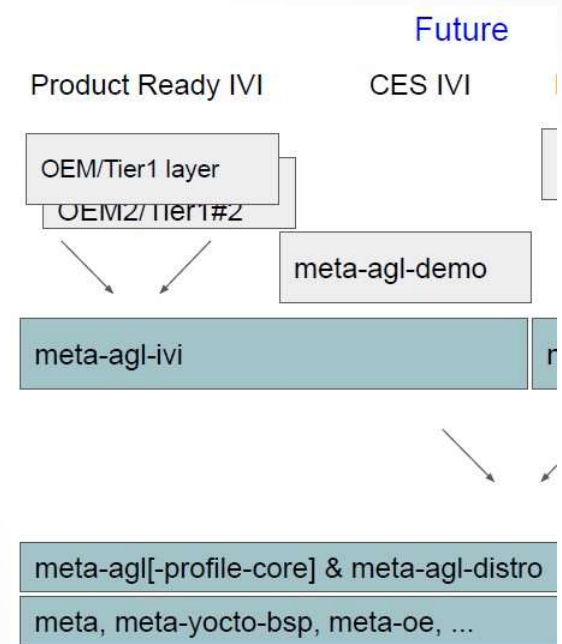
# How to integration of Trial

- All new components are integrated into meta-agl-devel once
  - After new layers come, migrates all recipes of IVI in meta-agl-devel to proper layers (e.g. meta-agl-ivi and OEM layer)

## Trial



## 1<sup>st</sup> Release



# How to integration of Trial (cont.)

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- Issues still remain: how to add AGL features for new components

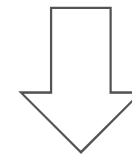
E.g. today's basesystem in staging

Available features:

[meta-agl]

ns-backupmanager  
ns-commonlibrary  
ns-frameworkunified  
ns-loglibrary  
ns-notificationpersistent  
os-eventlibrary  
os-posixbasedos001legacylibrary  
os-rpclibrary  
os-vehicleparameterlibrary  
ps-communication  
ss-config  
ss-interfaceunified  
ss-loggerservice  
ss-powerservice  
ss-resourcemanager  
ss-romaccesslibrary  
ss-systemmanager  
ss-taskmanager  
ss-versionlibrary  
vs-positioning  
vs-positioningbaselibrary

**Too complicated (too detailed)**



**Need to organize into  
Dependency of packages (recipes) and  
AGL Features (templates)**

# Sample integration how to use meta-agl-devel

## • CES2020 container integration demo

Manifest branch: refs/tags/halibut/8.0.3  
Manifest merge branch: refs/heads/halibut  
Manifest groups: all,-notdefault  
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### Projects Overview

#### meta-agl

\* sandbox/ruke47/ces2020\_803 ( 3 commits, Tue Jan 7 02:07:11 2020 +0900)  
- 320f3744 [RCAR] Update graphics driver  
- 5e20dda4 weston: Disable wayland backend frame  
- 576d49b3 Fix wayland-backend bug with more than 2 outputs

#### meta-agl-demo

\* sandbox/ruke47/ces2020\_803 ( 1 commit, Wed Dec 25 21:15:32 2019 +0900)  
- 2c41a10f agl-container-demo: split recipe of sllin driver and service

#### meta-agl-devel

\* sandbox/ruke47/ces2020\_803 (24 commits, Thu Jan 30 12:06:54 2020 +0900)  
- 34fdd427 agl-container: initial import into meta-agl-devel  
- 1c617a7e agl-container: base config of LXC container  
- 7247ea0d agl-container: new packagegroup for agl-container-host  
- f5c9474c agl-container: new packagegroup for agl-container-lxc-guest  
- 9b097f00 agl-container: backport lxc 3.2.1  
- 6ea7578d agl-container-demo: initial import into meta-agl-devel  
- caa01996 agl-container-demo: new host image of agl container demo  
- 9e669054 agl-container-demo: config of guest's rootfs  
- 051d0598 agl-container-demo: setup lxc-net for host  
- 04c91ec2 agl-container-demo: setup wayland compositor of host  
- 2bc01410 agl-container-demo: lxc-net would fail if run before eth0 up  
- 971580b1 agl-container-demo: enable LIN, Radio and Audio  
- 25401314 agl-container-demo: enable gstrecord on container  
- 393e88c0 agl-container-demo: agl-demo-platform for lxc container  
- dd5adcc3 agl-container-demo: config of IVI demo container  
- 84275562 agl-container-demo: setup child weston for guest IVI  
- 73bc477b agl-container-demo: agl-cluster-demo-platform for LXC container  
- 166b7414 agl-container-demo: config of IC demo container  
- 97a321c7 agl-container-demo: setup child weston for guest IC  
- 541cb025 agl-container-demo: enable Radio of Kingfisher  
- 89ecd9cfe agl-container-demo: [HACK] most/unicens (host)  
- 12bf2345 agl-container-demo: simple container manager, lxc-launcher  
- 74829e2c agl-container-demo: support demo of rebooting container/system

Only bug fixes for CES2020 demo use case

All new features and components are added here

# Sample integration how to use meta-agl-devel (cont.)

- meta-agl-devel for CES2020 container integration demo





km/h  
Thank you