

IOT BZH

Automotive Grade Linux

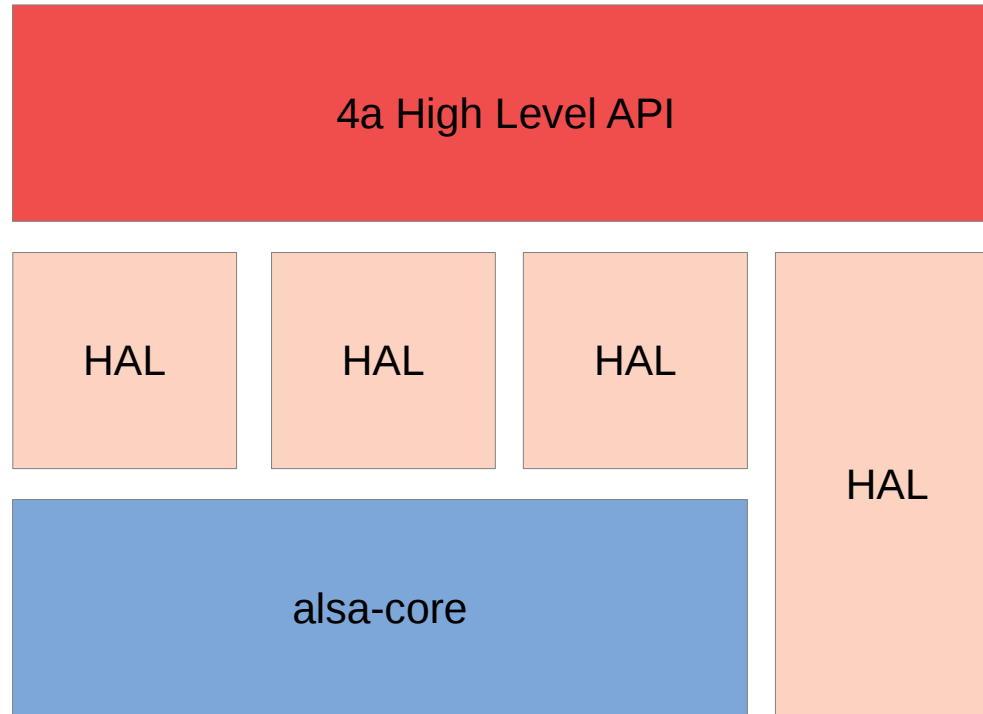
Audio Status



AGL – April 2018
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Architecture



High Level API (4a)

- Hardware agnostic
- Provide policies
 - Priority
 - Pause or lower volume
- As minimal as possible
 - No mixing, routing, dsp, ...

Hardware Abstraction Layer

- JSON defined
 - Easy to read and write
 - Easier maintenance
 - Extensible
- Make use of the controller
 - Able to load and use C functions
 - Able to load and use Lua functions

HAL - C

- Controls mapping

```
STATIC alsaHalMapT  alsaHalMap[]= {
    {
        .tag=Master_Playback_Volume,
        .ctl={.name="Digital Playback Volume1", .value=80 }
    },
    {
        .tag=Capture_Volume,
        .ctl={.name="DVC In Capture Volume" }
    },
    ...
};
```

HAL - JSon

- Controls mapping

```
"control": [  
  {  
    "uid": "Volume",  
    "alsa": {  
      "name": "PCM Playback Volume",  
      "value": 50  
    }  
  },  
  ...  
]
```

HAL - JSon

- Plugins

```
"plugins": [  
  {  
    "uid": "fd-dsp-hifi2",  
    "info": "Fiberdyne DSP client library for HiFi2",  
    "basename": "fd-dsp-hifi2",  
    "ldpath": "./fd-dsp-hifi2"  
  }  
]
```

HAL - JSon

- Equalization points

```
"eqpoint": {  
  "action": [  
    {  
      "uid": "eq-add-point",  
      "function": "plugin://fd-dsp-hifi2/eq_add_point"  
    },  
    {  
      "uid": "eq-remove-point",  
      "function": "plugin://fd-dsp-hifi2/eq_remove_point"  
    }  
  ]  
}
```


HAL - JSoN

- Filters

```
"filter": {  
  "plugin": "fd-dsp-hifi2",  
  "action": [  
    {  
      "uid": "filter-hip",  
      "function": "plugin://fd-dsp-hifi2/filter_hip"  
    }  
  ]  
}
```

HAL - JSoN

- Cards

```
"cards": {  
  "uid": "A",  
  "alsa": "xf-dsp-alsa:0,1",  
  "desc": "Xtensa R-Car HiFi2 DSP",  
  "action": {  
    "uid": "init-snd-card",  
    "function": "plugin://fd-dsp-hifi2/init-stereo"  
  },  
  "channels": { ... }  
}
```

HAL - JSon

- Channels (defined inside Card elements)

```
"channels": {  
  "sink": [  
    {  
      "type": "FrontLeftFullRange", "port": 0  
    },  
    ...  
  ],  
  "source": [  
    {  
      "uid": "FrontRightMic",  
      "type": "Directional",  
      "port": 0  
    }  
  ]  
}
```

HAL - JSoN

- Zones

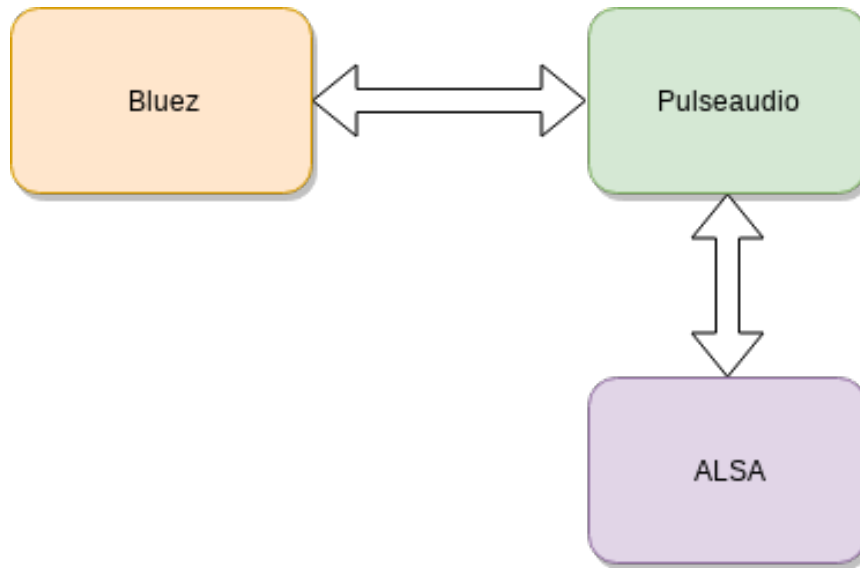
```
"zone": [  
  {  
    "uid": "FrontSeat",  
    "type": "sink",  
    "mapping": [  
      [ "FrontRightMain", "FrontRightHigh" ],  
      [ "FrontLeftMain", "FrontLeftHigh" ]  
    ]  
  },  
  ...  
]
```

HAL - JSon

- Streams

```
"streams": [  
  {  
    "name": "phone",  
    "profile": "test",  
    "source": {  
      "channels": 1,  
      "zone": "DriverMic",  
      "defaultconfig": { "volume": "25" }  
    },  
    "sink": { "channels": 2, "zone": "FrontSeat" }  
  },  
  ...  
]
```

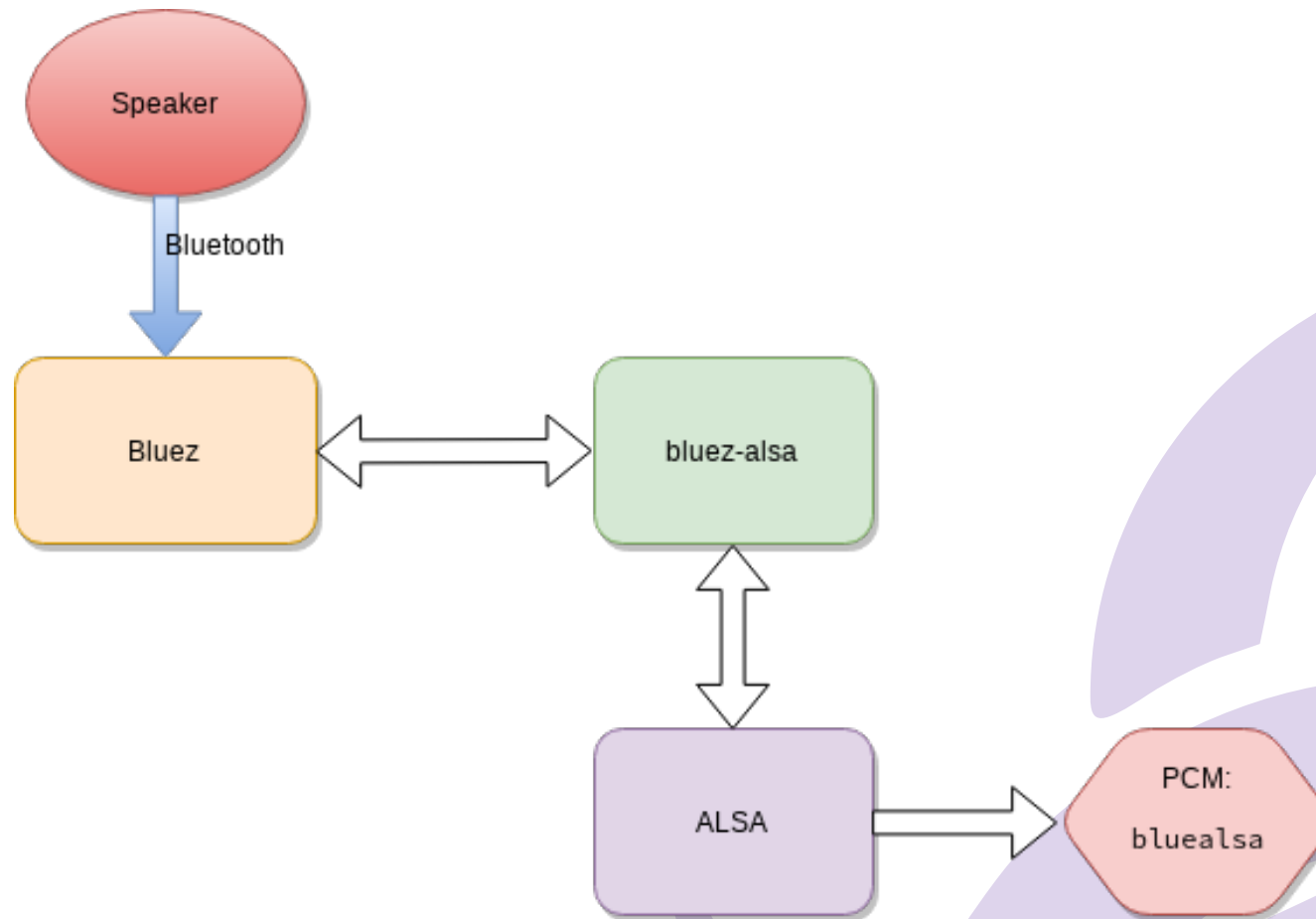
Bluez on AGL current status



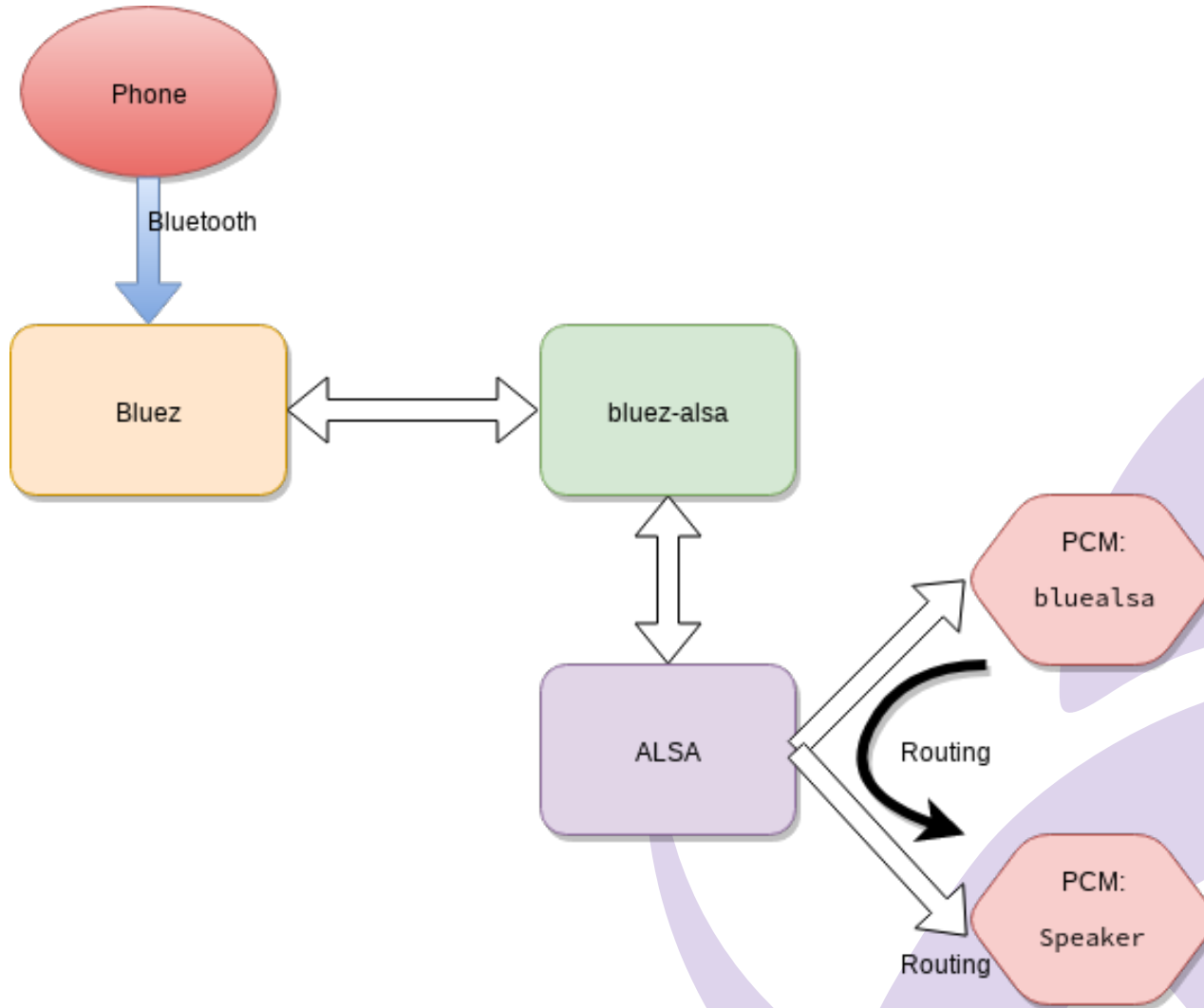
Not compliant with AGL 4A

Bluez-alsa on AGL

Connect sink device



Bluez-alsa on AGL: Connect source device



Bluez-alsa Link

- Test Bluez-alsa on AGL documentation:
- <http://docs.automotivelinux.org>
 - APIs & Services
 - bluez-alsa
- Upstream project Bluez-alsa:
 - <https://github.com/Arkq/bluez-alsa>

Status

- It's open source:
 - <https://git.automotivelinux.org/apps/agl-service-audio-4a/>
 - <https://git.automotivelinux.org/src/4a-alsa-core/>
 - <https://git.automotivelinux.org/src/4a-hal-reference/>
 - <https://git.automotivelinux.org/src/4a-hal-utilities/>
 - <https://git.automotivelinux.org/src/4a-hal-community/>
 - <https://github.com/fiberdyne/agl-4a-hal/>