



Bluetooth state in PipeWire and WirePlumber

FOSDEM'23

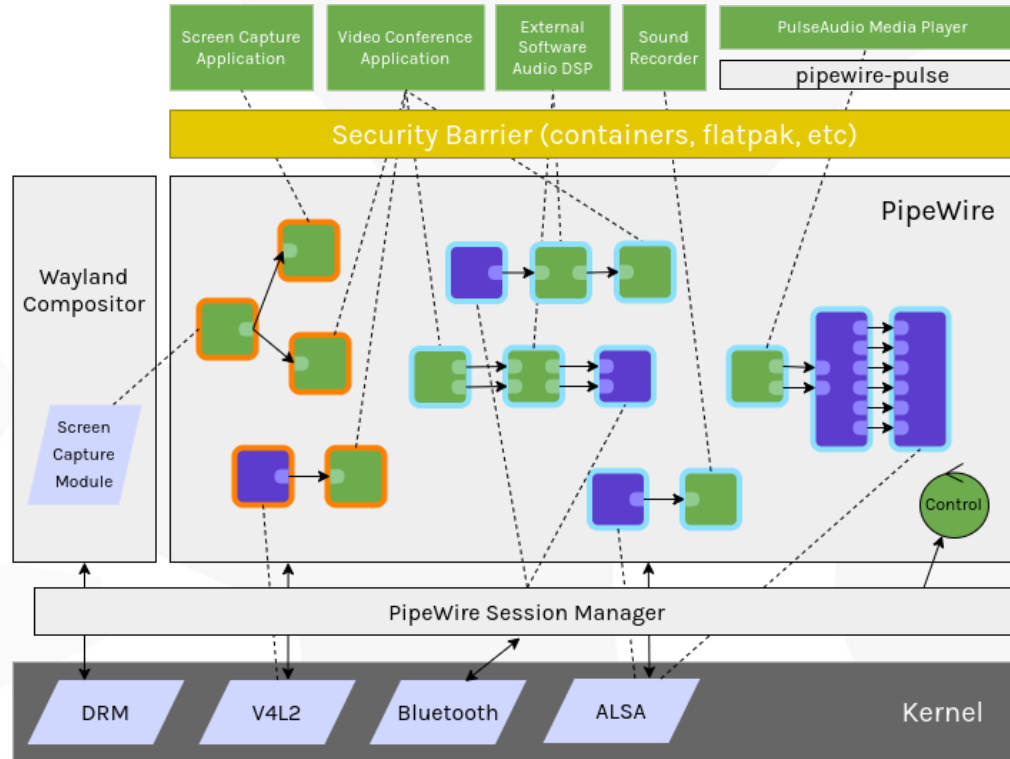
Frédéric Danis

frederic.danis@collabora.com

02/04/2023

COLLABORA

PipeWire and WirePlumber



Bluetooth Audio profiles

- Bluetooth Classic (BR/EDR)
 - Advanced Audio Distribution Profile (A2DP)
 - HandsFree Profile (HFP)
 - Legacy HeadSet Profile (HSP)
- Bluetooth Low Energy
 - LE Audio

Bluetooth Classic Audio Profiles

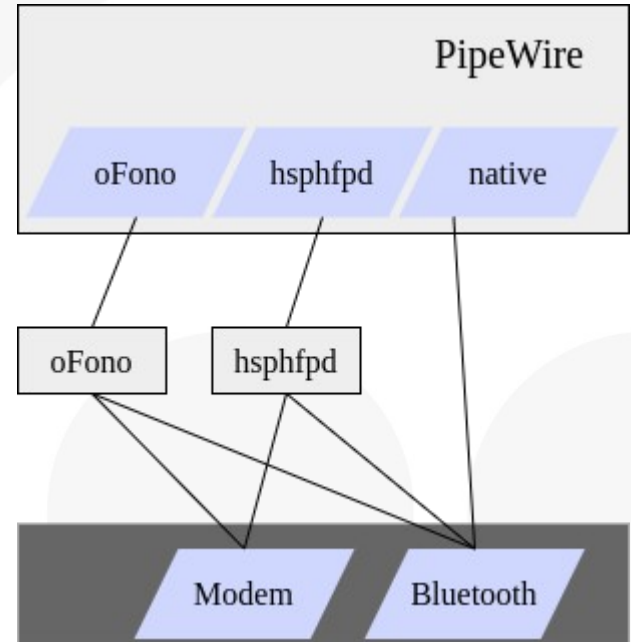
Stereo audio: A2DP

Codec	Mandatory	Proprietary	Library Licence	Bi-directional
SBC (XQ)	✓		GPL2	
AAC			Fraunhofer	
AptX (HD)		✓	GPL2	
LDAC		✓	Apache 2	
Opus			BSD	
LC3 Plus		✓	Fraunhofer	
FastStream			GPL2	✓
AptX LL		✓	GPL2	✓

Mono audio and telephony: HFP and legacy HSP

Both profiles define both the (e)SCO audio streams and the interactions with the modem through a defined set of AT commands

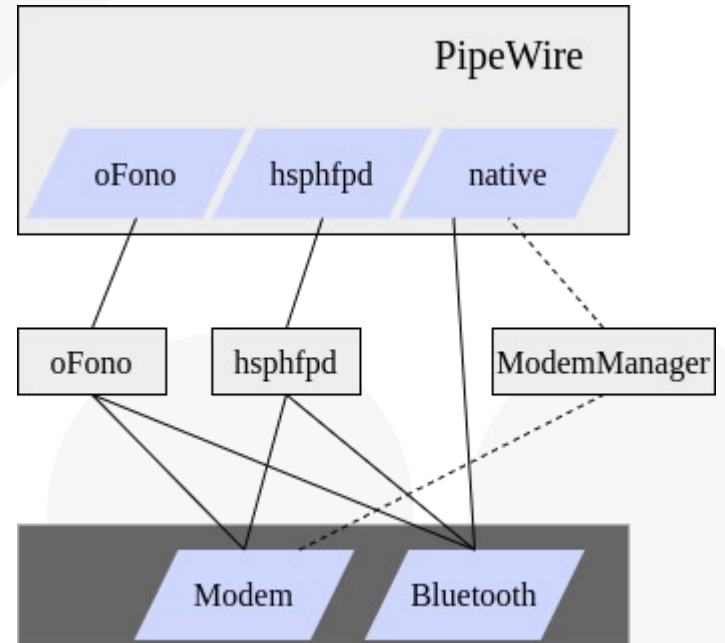
- Backends
 - oFono
 - hsphfpd
 - native



Mono audio and telephony: HFP and legacy HSP

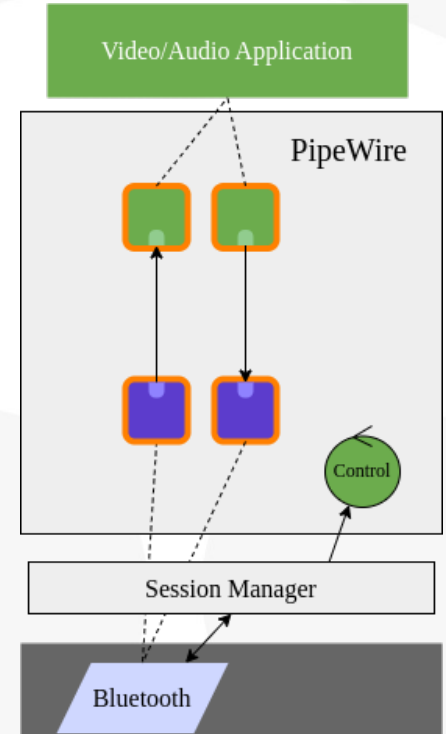
Both profiles define both the (e)SCO audio streams and the interactions with the modem through a defined set of AT commands

- Backends
 - oFono
 - hsphfpd
 - native
 - Optional support of ModemManager



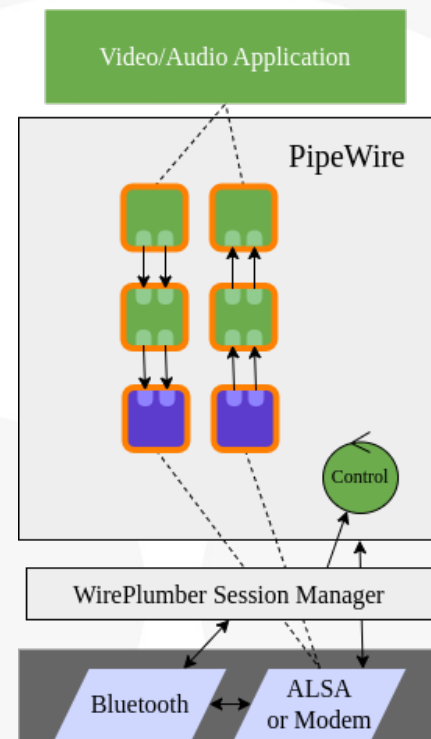
Mono audio and telephony: HFP and legacy HSP

- Codecs
 - Mandatory
 - CVSD
 - Optional
 - mSBC



Mono audio and telephony: HFP and legacy HSP

- Codecs
 - Mandatory
 - CVSD
 - Optional
 - mSBC
 - Hardware SCO offload support



LE Audio

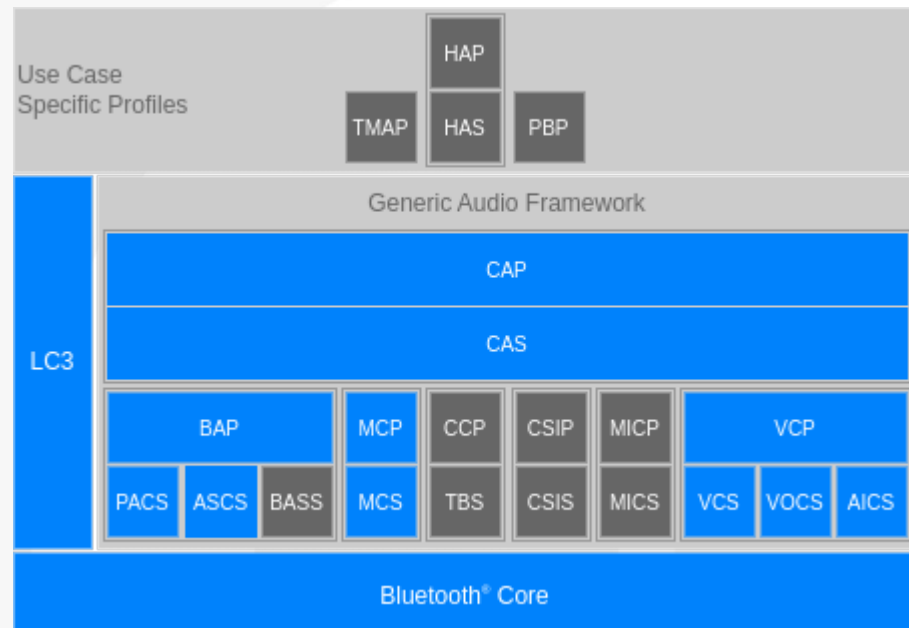
LE Audio

New set of profiles to unify stereo and mono audio

- Better sound quality with new Isochronous channel and LC3 codec
- Able to support bidirectional audio
- Multi-stream support
- Hearing aids support
- New Auracast™ mode to broadcast audio

LE Audio

- Re-use and expand the BlueZ Dbus Media API
- Still experimental in both BlueZ and PipeWire
- Broadcast supported at Kernel level but needs work in BlueZ, PipeWire and the UX



Thank you!

We are hiring - col.la/careers