

The Linux Bluetooth Stack

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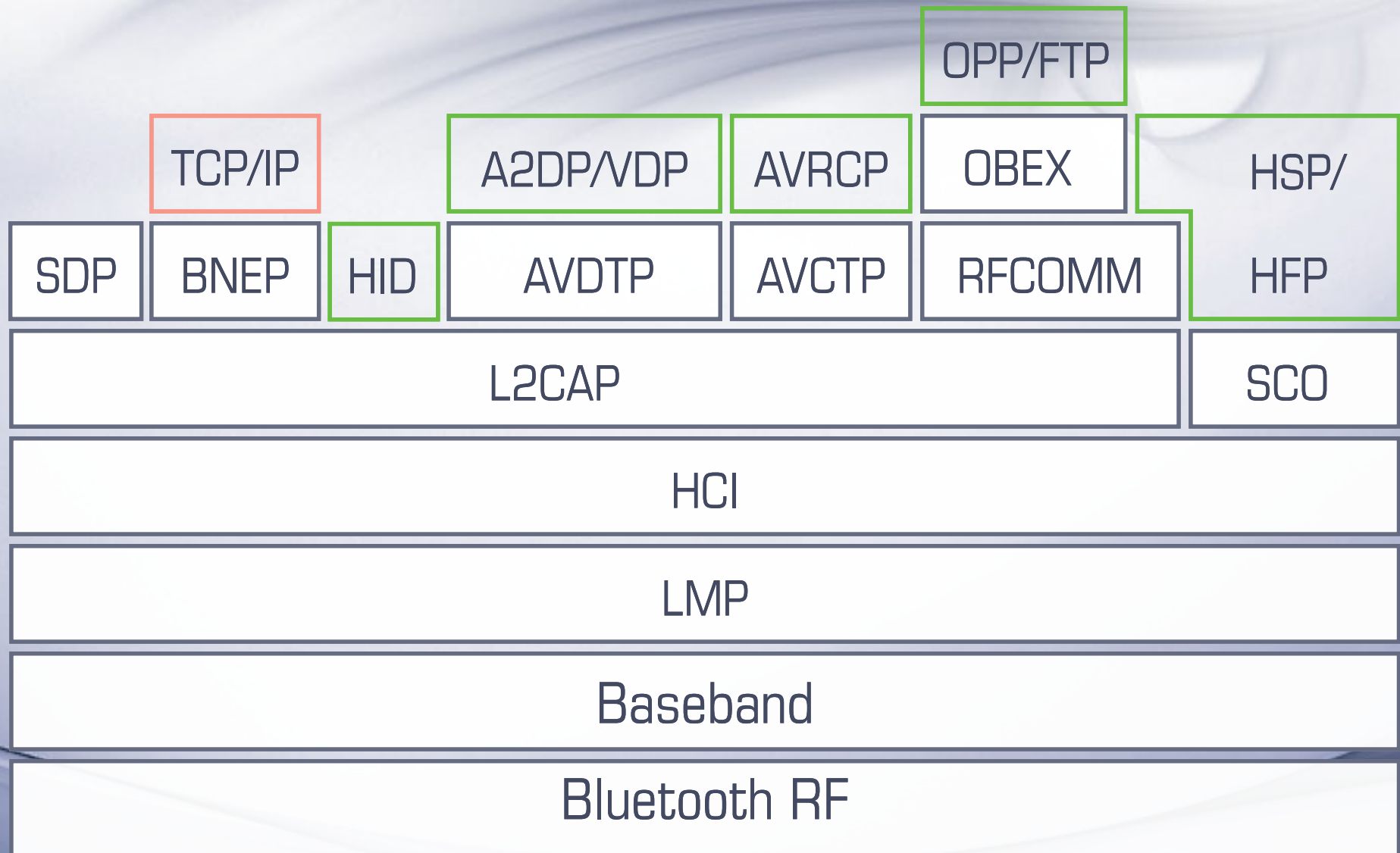
Agenda

- What's Bluetooth?
- What's BlueZ?
- Linux and The Bluetooth Stack
- L2CAP Extended Features
- Bluetooth 3.0 + High Speed
- Bluetooth Low Energy

What's Bluetooth

- Use the unlicensed 2.4GHz ISM band
- Designed for short-distance data exchange
- Designed as a cable replacement for many devices
- Many uses cases (profiles)
- Specified by the Bluetooth SIG
- Low power, low cost

The Bluetooth Stack



What's BlueZ

- Official Linux Bluetooth Protocol Stack
- Project started in 2001 by Qualcomm
- Not planned for the final user
- D-Bus API
- Used by gnome-bluetooth, kbluetooth, gnome-phone-manager, BlueMaemo, etc

BlueZ features

- Complete modular implementation
- Real hardware abstraction
- Support for multiple Bluetooth devices
- Device and service level security support
- Standard socket interface to all layers

Who develops BlueZ?

Marcel Holtmann

Johan Hedberg

Luiz Augusto von Dentz

Gustavo F. Padovan

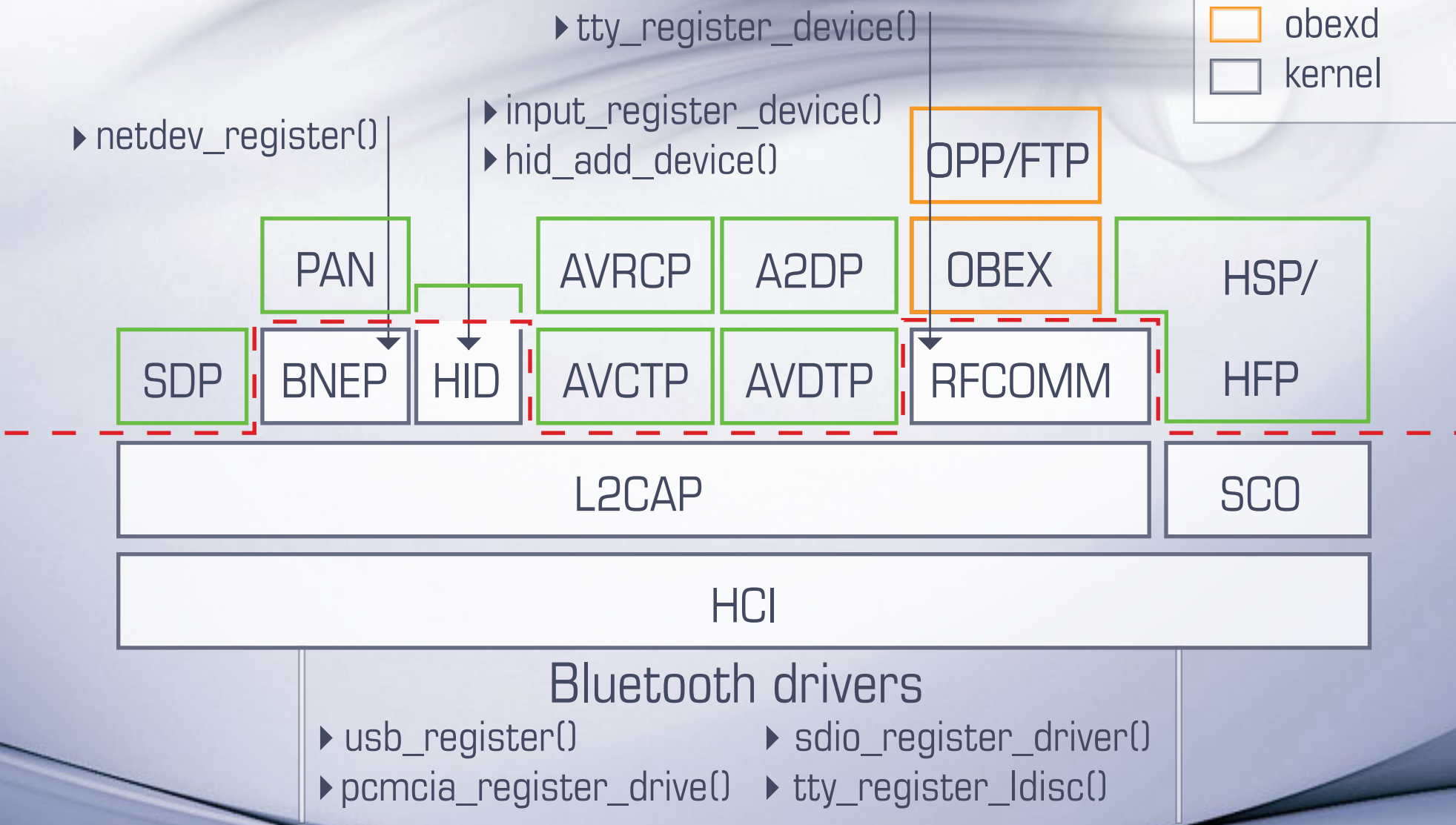
Claudio Takahasi

Vinícius Gomes

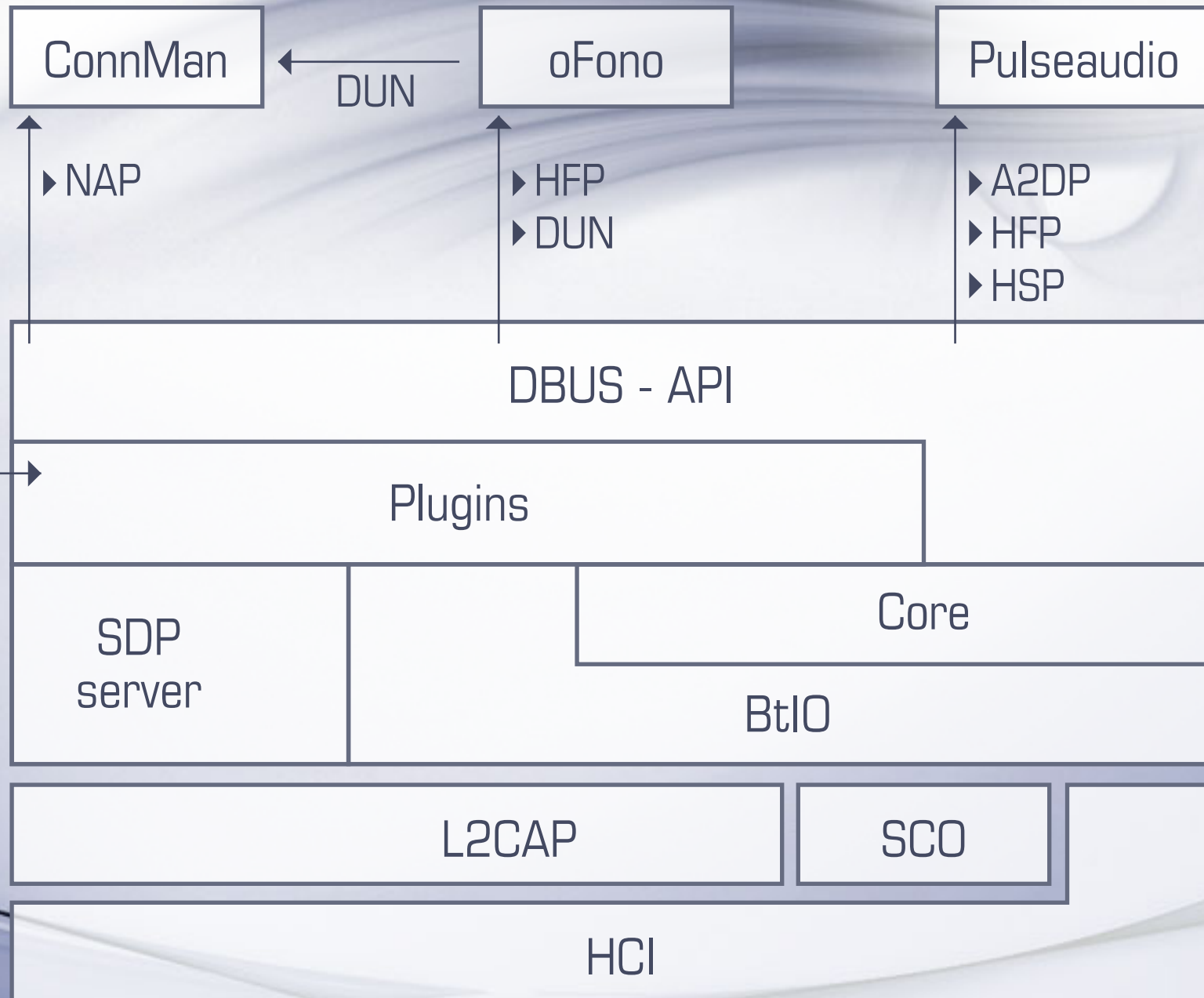
... and others

Linux and the Bluetooth Stack

- bluetoothd
- obexd
- kernel



bluetoothd



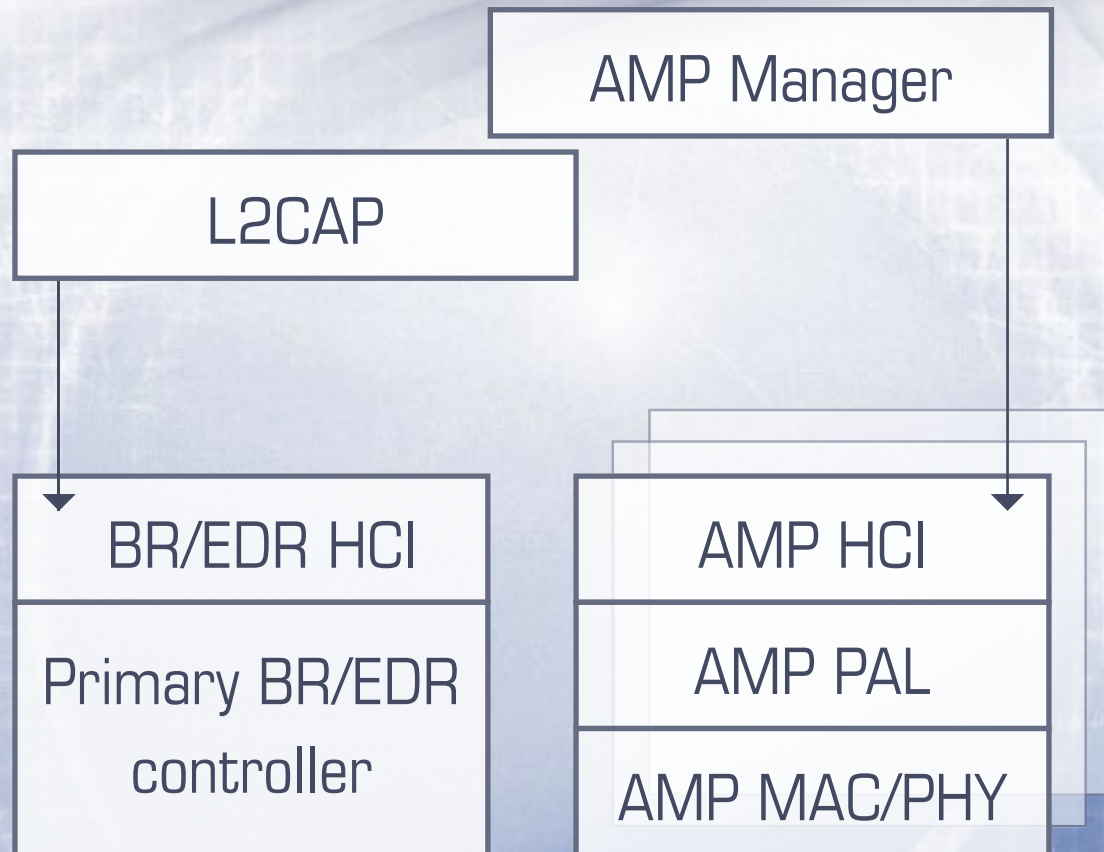
L2CAP extended features

- Add segmentation and reassembly of L2CAP packets
- Add a reliable protocol (Enhanced Retransmission Mode)
- Add a streaming protocol (Streaming Mode)
- Add checksum (Frame Check Sequence)
- Needed by High Speed and Health Profiles

Bluetooth 3.0 + hs

- Add support to use others radio like the 802.11
- Increase the Bluetooth transfer bandwidth
- Need a layer to translate HCI <-> mac80211

Bluetooth 3.0 + hs



Bluetooth 3.0 + hs on Linux

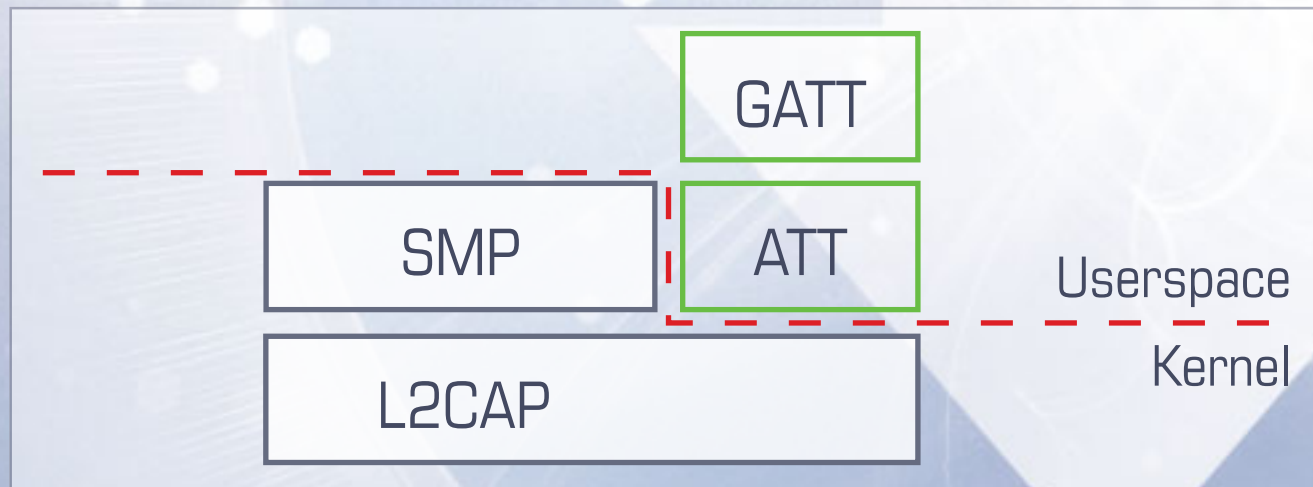
- Still under development
- Abstraction of the change of controller
- No visible changes for the user

Bluetooth 4.0

- a.k.a. Bluetooth Low Energy
- Add a new 2.4GHz radio
- Can be Single Mode or Dual Mode
- Can use the same radio for LE and BR/EDR

Bluetooth Low Energy on Linux

- Still under development
- Abstraction of the LE controller
- No visible changes for the user



The End!

ProFUSION
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