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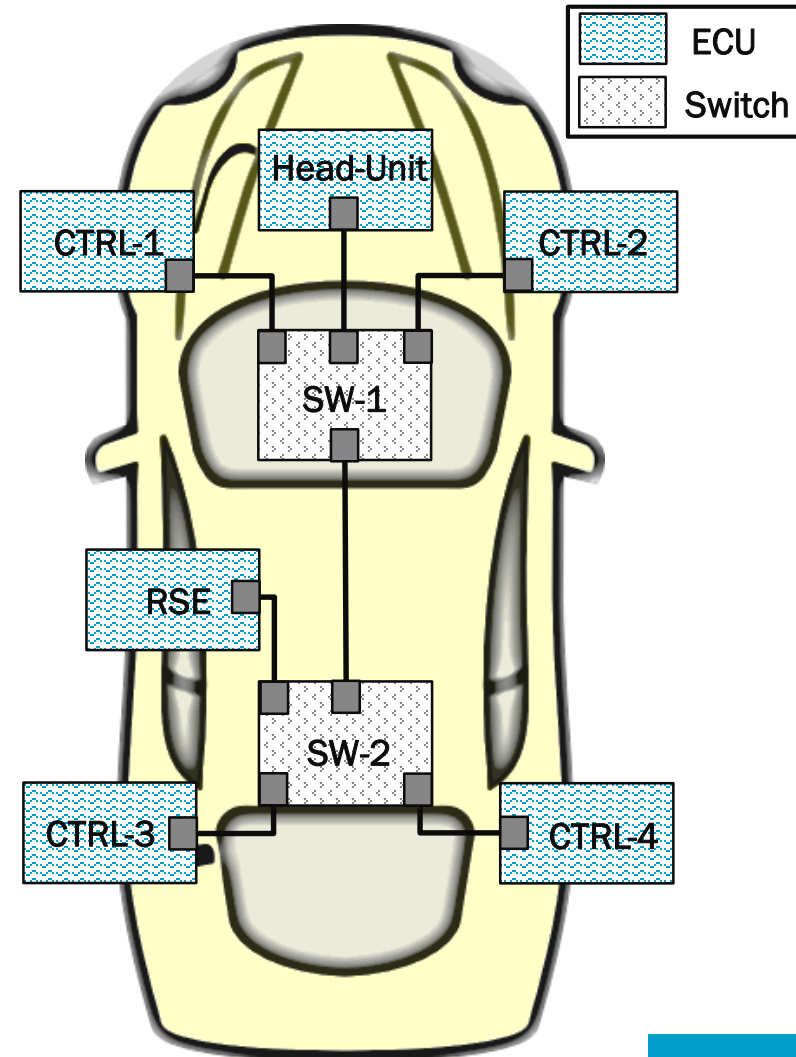
A module for the FTT-SE protocol in ns-3

Fábio Oliveira, Ricardo Garibay-Martínez, Tiago Cerqueira, Michele Albano, Luis Lino Ferreira

Flexible Time Triggered Switched Ethernet (FTT-SE)

- **Modern real-time** applications, for example **automotive** applications, are becoming **larger** and **more complex**.
  - Tens of interconnected ECUs requiring **high bandwidth** and computing power.

- **FTT-SE** provides **higher bandwidth** and **conciliates**
  - **best-effort** traffic
  - **real-time traffic** (synchronous and asynchronous) in reserved time slots

- **Master** on the bus to manage reservations

ECU

Switch

Head-Unit

CTRL-1   CTRL-2

SW-1

RSE

SW-2

CTRL-3   CTRL-4

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Features of the FTT-SE module

- It implements the FTT-SE protocol:
  - **Helper to configure** FTT-SE network,
  - Runtime *Plug-and-Play* scenario for the dynamic registration of streams (messages)
  - **Traffic scheduling** by the **Master** node guaranteeing hard real-time constraints
  - Bandwidth **guarantee** for two types of traffic: **Synchronous** and **Asynchronous**

- Fork-Join Parallel/Distributed paradigm
  - **Real-time Concurrency modelling** for single core distributed nodes

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