Dimensioning the synchronization of a TSN network in different embedded contexts

Quentin Bailleul (IRT Saint Exupéry), Katia Jaffrès-Runser (IRIT), Jean-Luc Scharbarg (IRIT) and Philippe Cuenot (IRT Saint Exupéry segunded Continental)

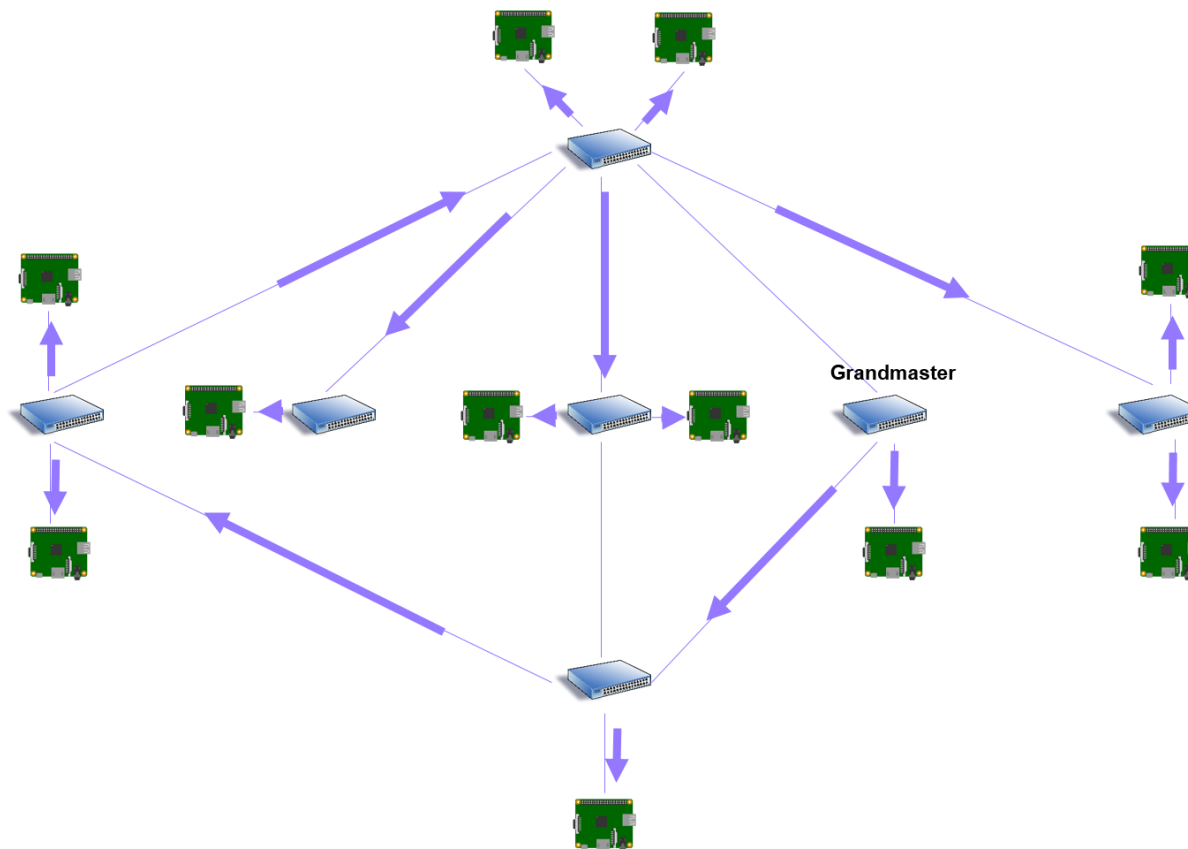## Time Sensitive Networking :

A set of standards to make Ethernet more deterministic.

IEEE 802.1AS :

802.1AS is the synchronization standard based on PTP (IEEE 1588) proposed by the TSN working group.

In a network with 7 hops, it achieves clock accuracy in the sub-microsecond range.

Embedded context :

Grandmaster

FRENCH
INSTITUTES OF
TECHNOLOGY

Our work

What we have done

- State of the art of network synchronization

- A method to design a redundant and precise AS configuration on embedded networks

- Improvement of an AS simulation library on OMNeT++

Work in progress

- Assessing the simulator with AS hardware measurements

Future work

- Worst case precision