

## Self healing and resource monitoring

### Self Healing for wireless robust transmissions: TDuCSMA

#### THE RATIONALE

In MONSOON, the **on-field data collection** is the main enabler of the AI algorithms

- Data needs not to get lost >> determinism
- The larger amount of data, the better the algos >> scalability

Wireless data collection is desirable...

- Easy plant installation
- Easy reconfiguration
- Immune from cable wear and tear

... but has to prevent some threats

- Hostile environment and hidden terminals (HTs)
- Quasi-deterministic delivery (few packet- loss)

#### TD-uCSMA

WiFi is the most used local-range wireless protocol

Already adopted also in industrial environment

- Good performance if not heavily challenged
- Intrinsic robustness for unicast traffic
- Lack of determinism, especially with HTs

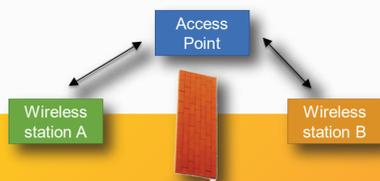
TD-uCSMA is intended to address WiFi limitations

- Developed by LINKS
- Backward compatible to WiFi but with added determinism thanks to a time-division approach on top of it

#### THE HIDDEN TERMINAL (HT) ISSUE

In MONSOON TD-uCSMA has been further extend to solve the Hidden Terminal issue

- A and B cannot see each other and cannot mutually coordinate their transmissions



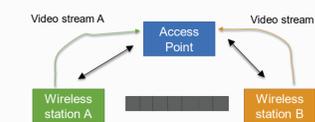
### RESULTS

#### WITHOUT HIDDEN TERMINAL

##### WiFi

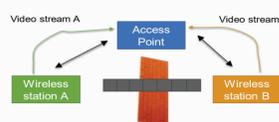


##### TD-uCSMA

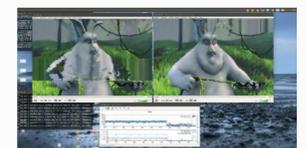
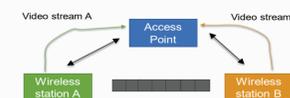


#### WITH HIDDEN TERMINAL

##### TD-uCSMA (and WiFi) without HT protection



##### TD-uCSMA with HT Protection



### UNIFIED MULTIPROTOCOL RESOURCE MONITORING

- **MONSOON has integrated** resources and microservices monitoring via a multiprotocol platform
- Logging capabilities of container processes allow them to flexibly monitor their status asynchronously

- Using a **unified GUI**.  
75+ monitored items  
40+ triggers

