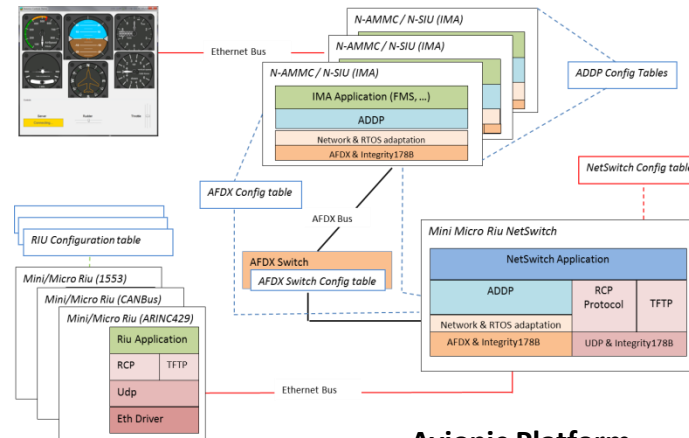


## ADVANCED STUDY 45-1-6: STUDY ON REAL-TIME PUBLISH-SUBSCRIBE - DATA DISTRIBUTION SERVICE (RTPS-DDS) AVIONIC DATA DISTRIBUTION PROTOCOL

**DDS/RTPS** to be used with the restrictions of an avionic system (custom middleware) :

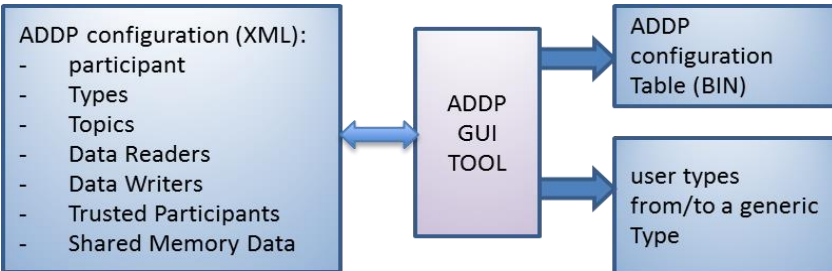
- **Data distribution based on topic.**
- **Topics can be added through Configuration file.**
- **High level of configuration per host and per topic.**
- **Portability** (it is possible to compile the library in the widest range of environments).
- **Low dependency from the HW/RTOS:.**



– Avionic Platform SW Architecture –

- ADDP Configuration Files -

- VMS avionic architecture -



**ADDP** used with the VMS Leonardo computers (i.e. Aircraft Management and Data Concentrators) will provide **virtualization** to the application SW with respect to the HW/SW infrastructure (including OS), with real-time management. Improving reliability of the avionic system and reducing costs.



### Avionic Data Distribution Protocol (ADDP)

- tailoring of the RTPS protocol (Interface is a tailoring of DDS/DCPS API).
- designed to be platform & RTOS independent
- designed to run over UDP/IP and AFDX
- developed following Do178B objectives.

**N-AMMC** and **N-SIU** are Aircraft Mission Management Computers that consists of configurable HW and Resident SW that implement a real-time run-time environment to perform a wide range of capabilities (FMS, HUMS, Data Concentrators, ..), embedding DDS/RTPS.

Major highlights are:

- Certified on Civil Rotary Wing platform – EASA Form 1
- Designed in accordance with DO254/DO178B level B compliances
- Application SW independent
- Open System Architecture
- Expectation of life greater than 20 years without major re-design