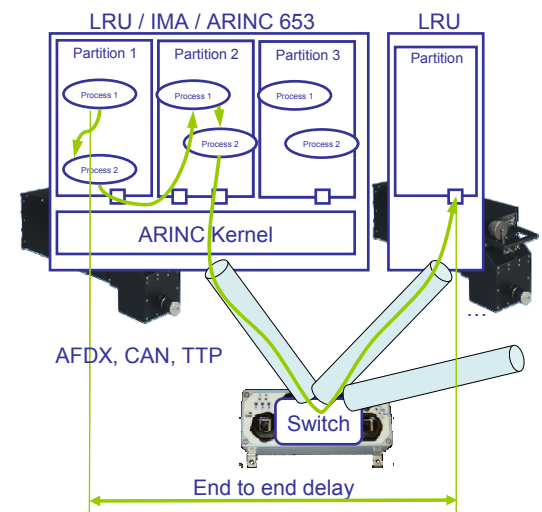


## Why Timing Analysis?

Aerospace systems need to be both extremely reliable and cost-optimal over the lifetime of an aircraft. A major challenge is the increasing complexity due to more electronic functions, a high degree of integration, new technologies and the planning of future extensions.

**Wrong decisions early in the design can cost many millions and delay a program for months or years.**

Timing Analysis predicts and verifies the performance of a system and finds problems caused by a lack of resources. Bottlenecks, risks and reserves are found early, enabling systematic optimization and early-warning of problems during development.



## Timing Analysis improves design and verification, including

- Application level: process execution and scheduling
- Controller level: partitioning, scheduling and data-flow
- Network level: protocol selection and delays in switched networks
- System level: budgeting, function allocation, mixed time-triggered and event-triggered systems

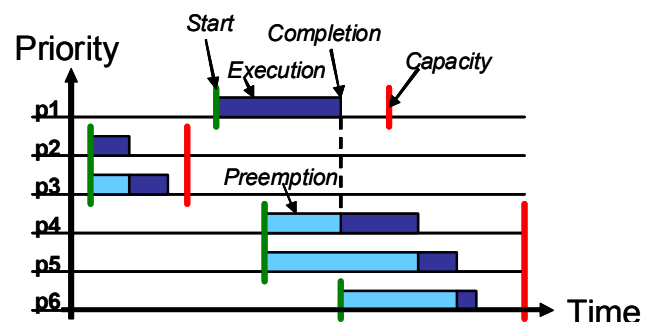
With focus on

- load / utilization
- delays / deadlines
- function, communication and end-to-end timing

Symtavision experts are building on their rich experience in the Automotive domain and innovating timing analysis for IMA, ARINC 653, AFDX, CAN, TTP, FlexRay, ...

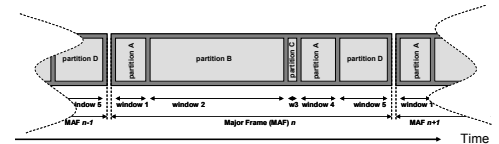
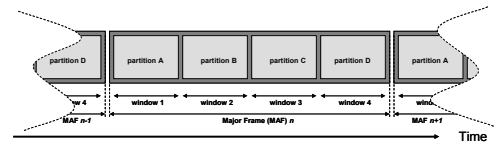
## Application Level – Partition Scheduling

- Verification of process deadlines / capacities
- Optimization of process priorities & software structure
- Budgeting of functions
- Dimensioning of hardware (or partition requirements)



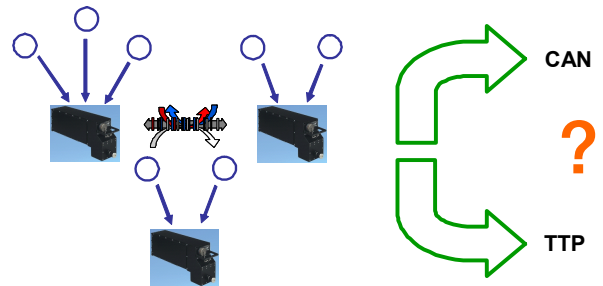
## Controller Level – Partitioned Operating System

- Major frame (MAF) design
- Mapping of partitions to schedule windows, optimization
- Verification of partition requirements
- Exploration of alternatives with respect to extensibility and certification cost



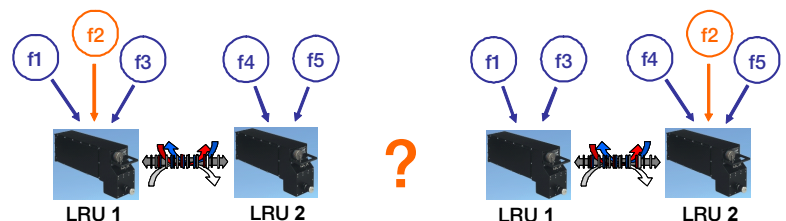
## Network Level – Protocol Selection

- Exploration of protocol and topology alternatives
- Integrating mixed event-triggered & time-triggered technologies
- Bus configuration
- Network verification and optimization



## System Level – Function Distribution and Integration

- Optimal distribution and integration of functions / partitions
- Budgeting of execution times to suppliers
- Estimation of bottlenecks and reserves



This innovation is supported by the European FP7 INTERESTED Project ([www.interested-ip.eu](http://www.interested-ip.eu)) with partners including AbsInt, AIRBUS, Esterel, Sysgo, Thales, and TTTech