



Design Optimization of Mixed Time/Event-Triggered Distributed Embedded Systems

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Summary

- Elaborate holistic schedulability analysis for heterogeneous TT/ET task-sets with the Universal Communication Model
- Use holistic schedulability analysis to guide the decisions during the design process

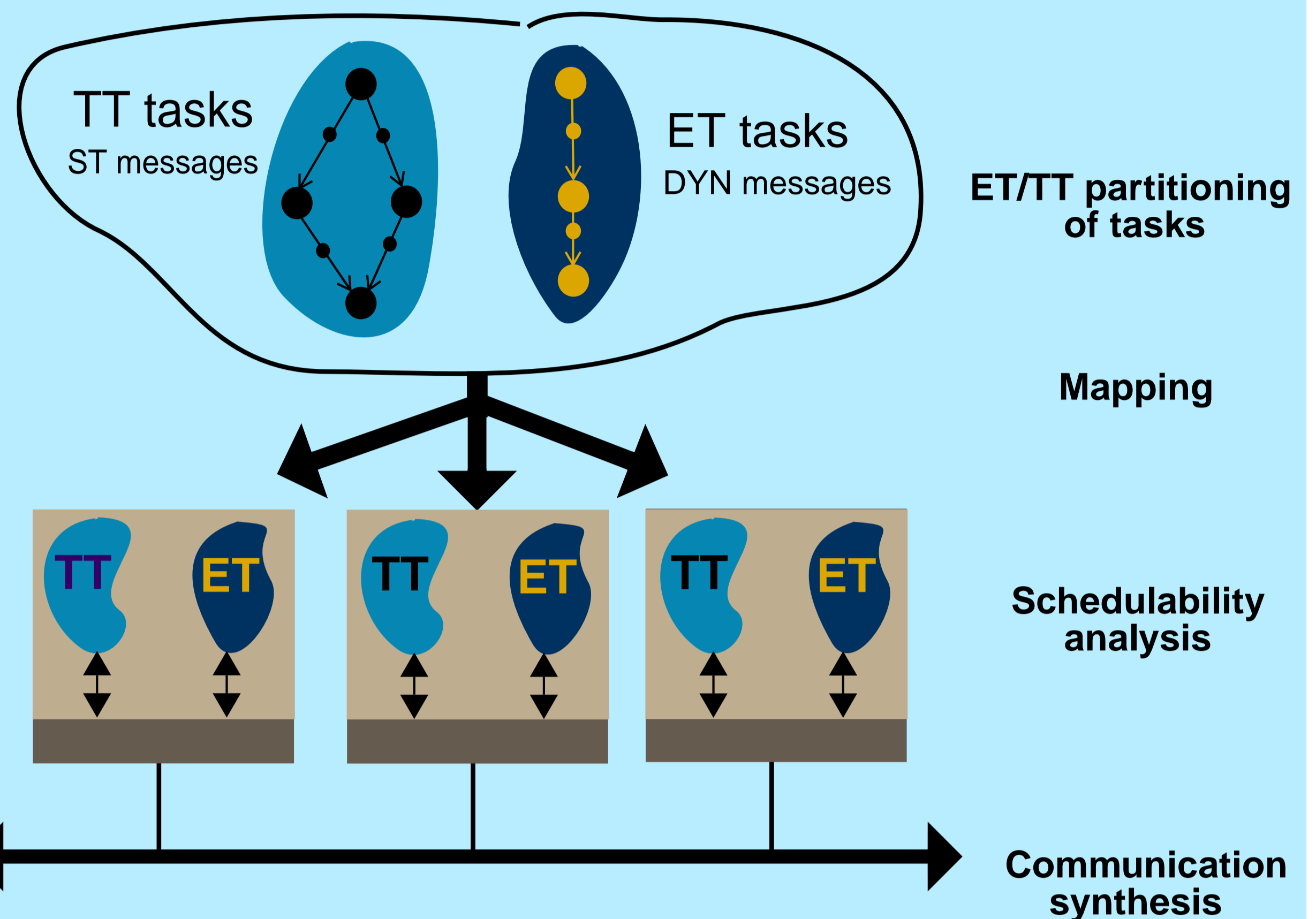
Motivation

- Provides high flexibility at deployment of new functionality
 - Reduced cost
 - Improved resource usage
 - Function close to sensor

UCM communication cycle



Heterogeneous ET/TT Distributed Systems



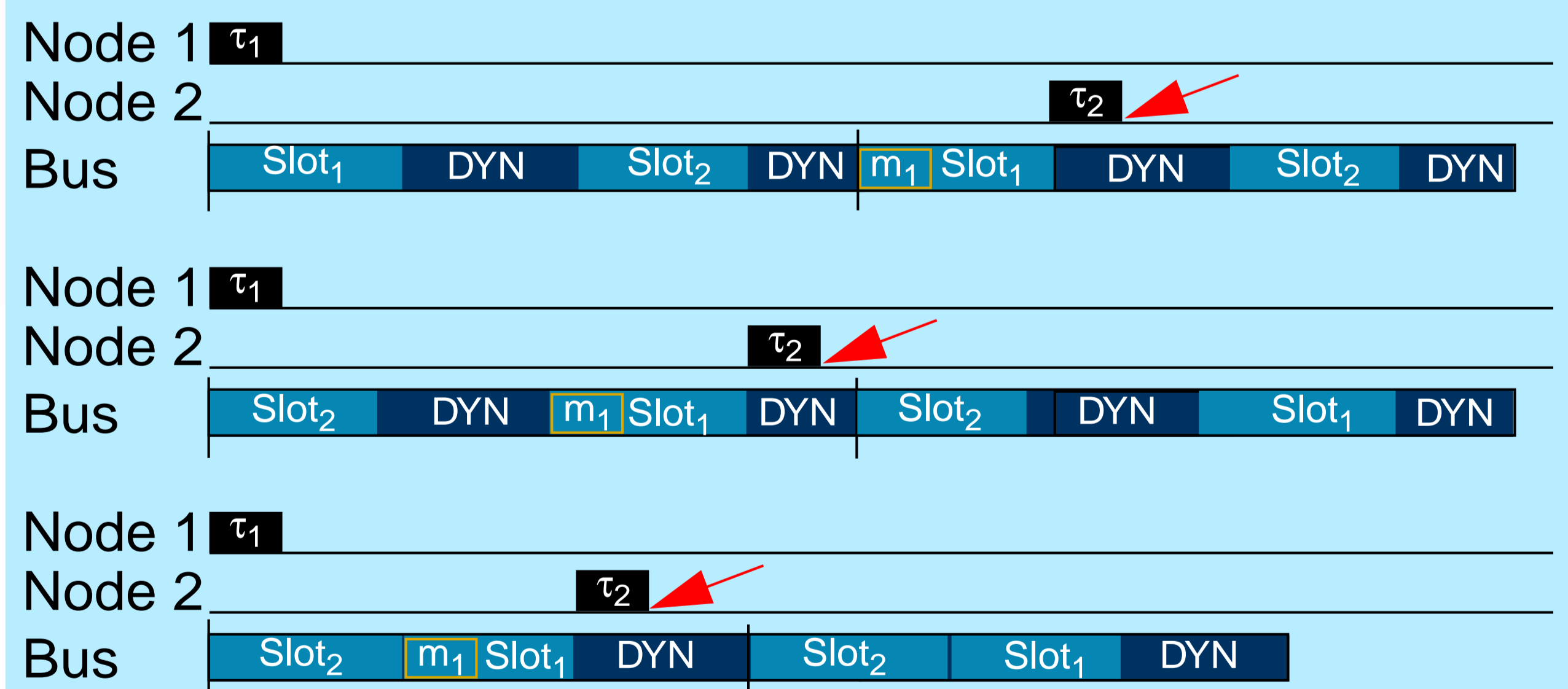
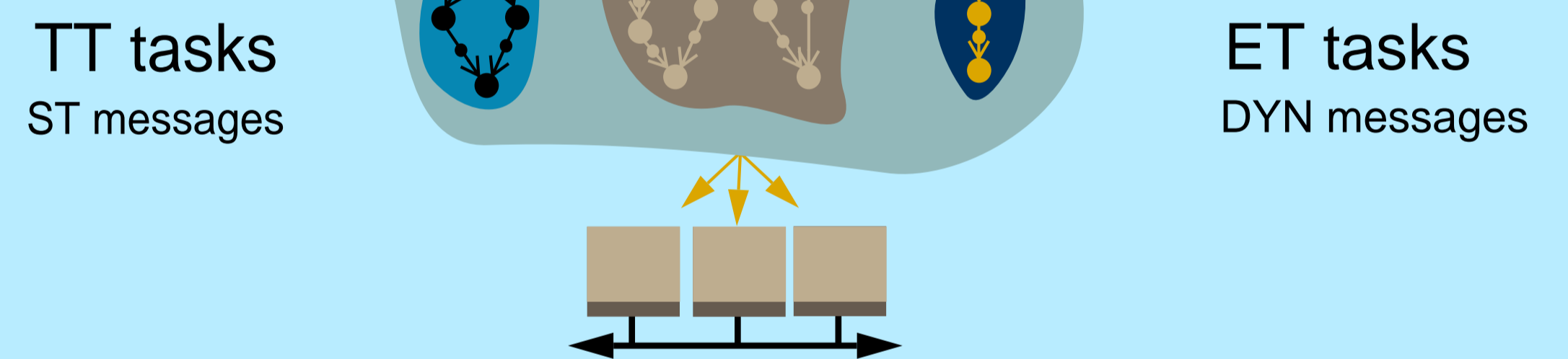
Design Optimization

Application Level Optimization Problems

- Partitioning of tasks into ET and TT domains
- Partitioning of messages into static and dynamic phases
- Task mapping

Optimizations at Communication Synthesis

- Structure of the communication cycle:
 - number, order and size of ST/DYN phases
- Structure of the static phase:
 - number, order and size of ST slots



Heuristic

