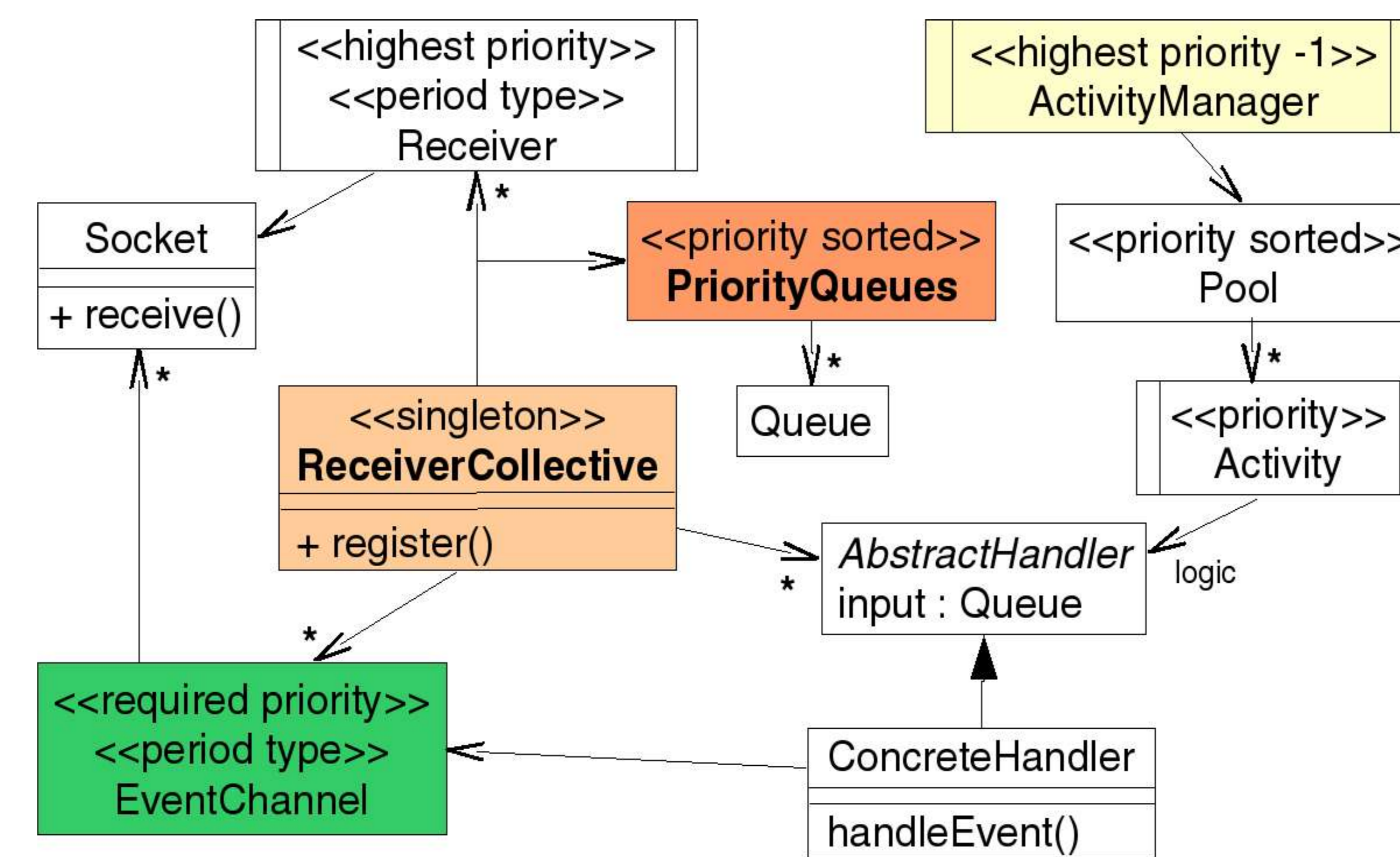


Real-Time Communication with a Receiver Collective, Activity Manager, and Queues

Asynchronous Communication for Real-Time Systems

Design Pattern Structure

Manager
- pool of activities.



Queues
- asynchronous cooperation.

EventChannel Declaration

- publish/subscribe topic,
- list of events,
- configuration of handling threads by
 - queue capacities,
 - schedulability (periodic, sporadic),
 - priority parameters.

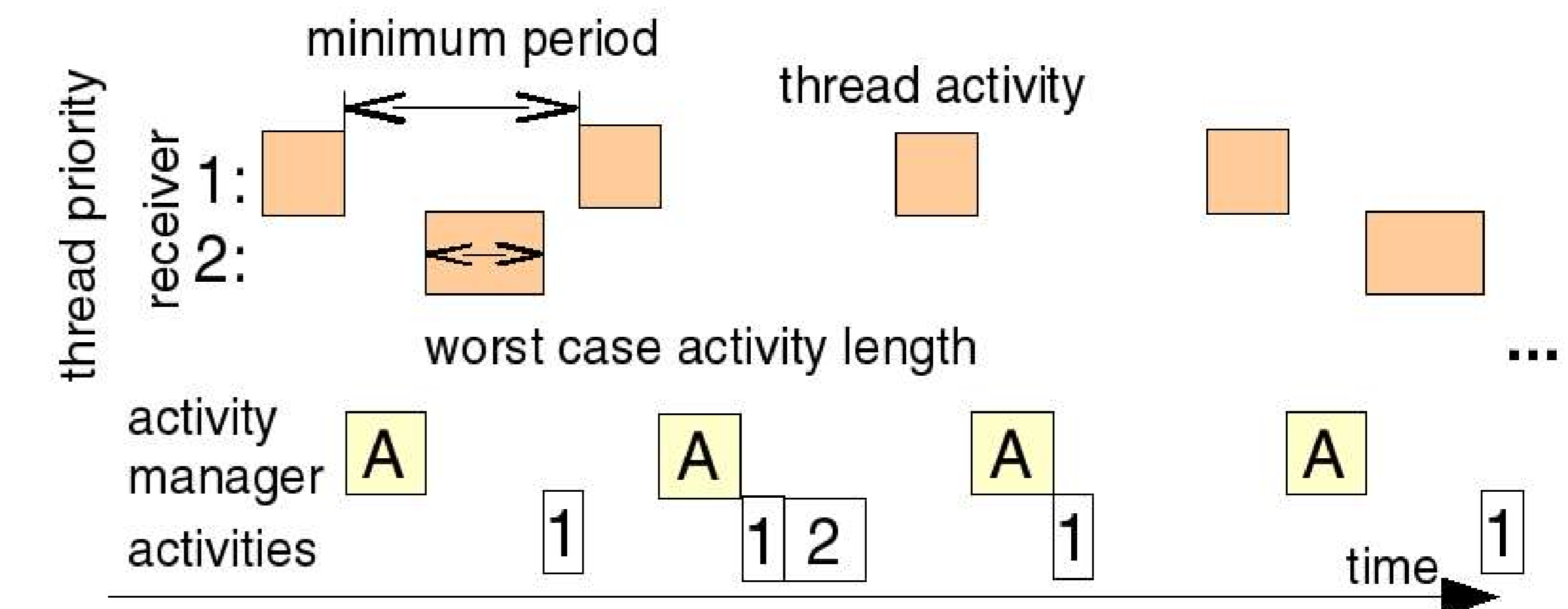
ReceiverCollective

- one thread per socket,
- highest priority, and
- dispatch received events by priority.

- Benefits**
- anonymous communication,
 - decoupling of publishers, and subscribers,
 - many-to-many interaction,
 - scalability, and efficient use of network bandwidth,
 - robust application design, and portability across platforms.

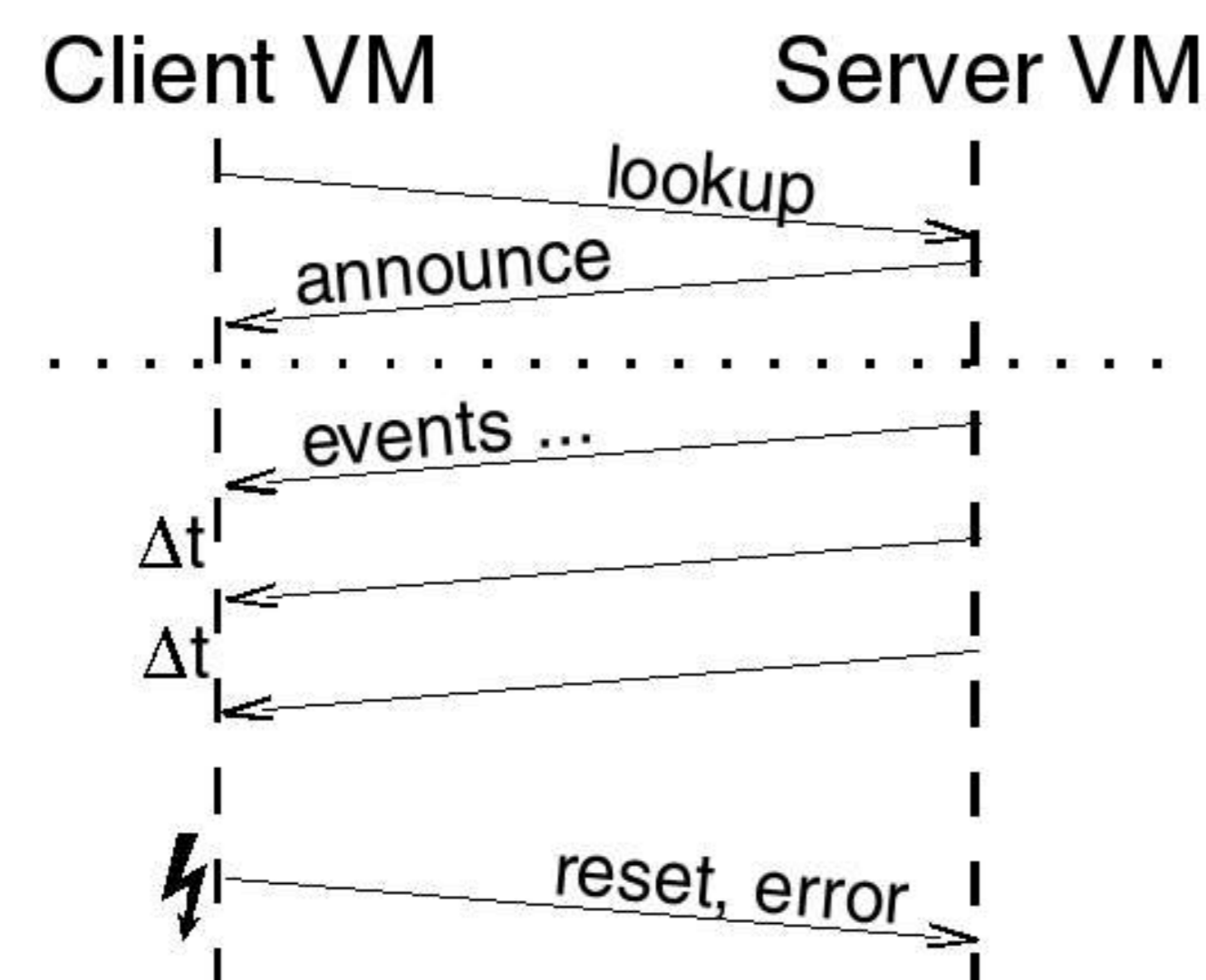
- Drawback**
- lack of synchronization ?

Timing / Scheduling in VM



schedulability of active objects

Nodes Interaction & Phases



initialization phase
non-time-critical activities:
object creation, configuration for mission phase, and dynamic negotiations.

mission phase
event communication in real-time constraints.