Information Society Technologies

ARTIST2 – Year 1 Review

Grenoble, October 3rd-4th, 2005

Activity *Cluster Integration*

Flexible Scheduling Technologies

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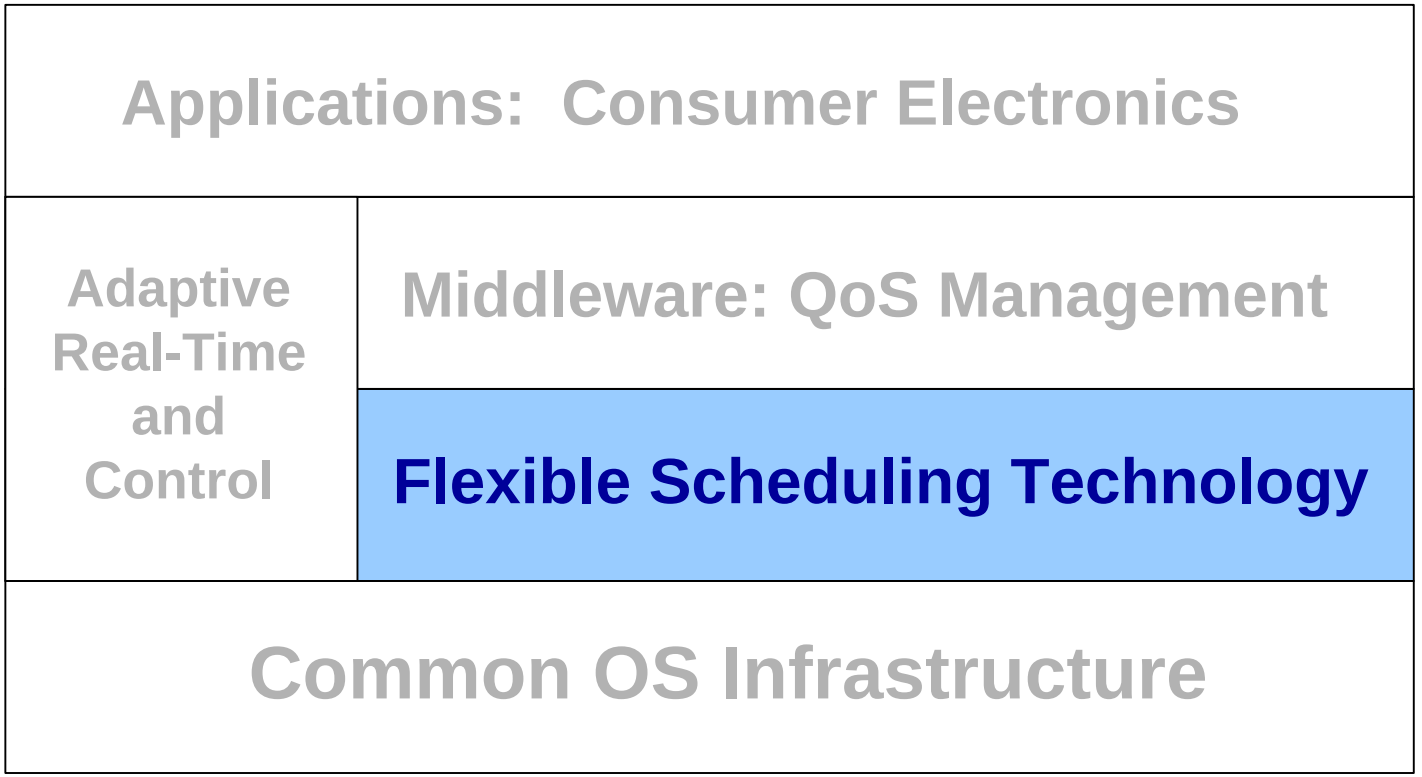
Overview of the activities of the ART cluster



Activity 2: JPRA Cluster Integration
Flexible Scheduling Technologies

Objectives

- Provide predictability and adaptivity to systems where resource requirements are inherently unstable and difficult to predict.
- Make OS and networks able to support
  - resource reservation
  - different scheduling paradigms
  - energy-aware policies
  - overload handling techniques for graceful degradation
- Show how such new technologies can simplify the development of complex embedded systems and make them more predictable, robust to peak-load conditions, and adaptable to new conditions.

Activity 2: JPRA Cluster Integration

Flexible Scheduling Technologies

Approach

1. Organize meetings within the cluster to integrate the different expertise of the partners
2. Exploit the experience coming from ongoing European projects to direct future research
3. Use ARTIST2 to organize strong consortia and set the agenda for new research at a European level
4. Use the common OS platform to implement and experiment the new technologies in real world applications

Activity 2: JPRA Cluster Integration

Flexible Scheduling Technologies

Achievements in Year 1

ARTIST2 contributed to progress in the following areas:

- energy-aware strategies to guarantee timing constraints while minimizing energy consumption.
- resource reservation mechanisms to reduce intertask interference and provide temporal protection.
- tools for schedulability analysis of complex systems.
- adaptive resource management for media processing.
- contract-based framework for flexible scheduling in real-time distributed systems.
- adaptive scheduling for distributed systems to balance bandwidth requirements with control performance.

Activity 2: JPRA Cluster Integration

Flexible Scheduling Technologies

Plan for the next 18 months

- Integrate resource-aware policies into flexible scheduling
- Integrate contract-based scheduling with QoS management
- Integrate component-based software with contract-based scheduling
- Flexible message scheduling for wireless networks
- Continue the standardization of OS services (POSIX)