Meeting of the Working Group OVSTR (15 October 2015):
Notes on the discussion session regarding CRPD issues and proposals for the next meeting

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Notes on the discussion: in general, the semantic of the execution model does not seem to be used to improve the results of the analysis of CRPD, or at least not explicitly through the notions of Useful Cache Block (UCB) and Evicting Cache Block (ECB). At the scheduling level, tasks models are being improved by integrating a CRPD value per task. Would several CRPD values be interesting? In addition, should the operating system (and thus the scheduler) be aware of more information coming directly from the application level, such as which path of the control flow graph is taken? Paths may have different properties on memory accesses, in particular when thinking about the impact of the execution model. Should the hardware level be aware of scheduling information, such as which task is the next one to be executed? Memory operations could then be performed for that next task, while the CPU is executing the current one. Last, but not least, should the notion of task be refined in phases having possibly different properties? The willing to capture more semantics from higher levels of design, as proposed in the talk on probabilistic approaches, also seems to push for enriching current tasks model or even redefine them. In both cases, we need to rethink which kind of information should be modeled.

Proposals of topics for the next meeting: in addition to the subjects written on the slides, two additional topics were proposed:

1. Reproducibility of experiments: which benchmarks to use and how, including how to share experiments? The goals would be to present benchmarks that are available and used by the research community. Possibly specific use cases coming from more industrial fields could also be presented in order to see how to model them. A weak point that is pointed out is that papers only give experimental results, mainly through graphs. There is no access to the raw data, thus performing a comparison with previous results is difficult if not impossible. Experimental conditions should be more clearly described or even accessible to anyone willing to reproduce experiments and (hopefully!) the corresponding results.

2. Liliana is organizing a seminar at INRIA about probabilistic approaches used at different levels of the design of real-time systems, from modeling to scheduling. Looking at these different layers may reduce the pessimism in the values obtained for pWCET. Speakers have already been identified and this proposal is clearly in the focus on the working group as it is interested in combining different layers of in order to optimize the behavior of real-time systems.

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