A Report from the Petri and Pi Working Group

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Process support has been a hot topic in the last 10 years. In the mid-Nineties, many people started to talk about workflow management and implement process-aware information systems. Today, a wide variety of workflow management systems is available and most other enterprise systems have incorporated a workflow engine. For example, SAP now even incorporates multiple workflow engines and languages in their enterprise system. In the last couple of years, the web-services paradigm has triggered the development of a variety of workflow-like languages, cf. BPEL4WS, BPML, WSFL, WSCI, XLANG, and WS-CDL. All of this has resulted in a "Tower of Babel" where everyone is using a different process language.

In discussions, Petri nets and Pi calculus are often mentioned as the two possible formal languages that could serve as a basis for the languages mentioned. Some vendors claim that their systems are based on Petri nets or Pi calculus and other vendors suggest that they do not need a formal language to base their system on. In essence there are three "camps": the "Petri net camp", the "Pi calculus" (or process algebra) camp, and the "Practitioners" camp.

This was the reason for starting the "Petri nets and Pi calculus for business processes" working group (http://www.smartgroups.com/groups/petri_and_pi) in June 2004. Its goal is to have discussions and meetings on the formal foundations of BPM in general and languages like BPEL4WS in particular. The workgroup was initiated by Robin Milner, Roger Whitehead, Rob van Glabbeek, and Wil van der Aalst. The discussion group is set up and managed by Keith Harrison-Broninski and the first face-to-face meeting is scheduled to take place in June 2005.

Challenges

The only way to have a meaningful discussion between people of the three camps is to consider challenging examples and model them in different languages ranging from Petri nets and Pi calculus to commercial languages and emerging standards. If you would like to contribute the discussion, please check out the initial examples provided via   http://is.tm.tue.nl/staff/wvdaalst/PandP_challenge.ppt (powerpoint) or http://is.tm.tue.nl/staff/wvdaalst/PandP_challenge.pdf (pdf). There you will find a number of small cases:

- Case insurance company: A simple case easy to model in any modeling language.
- Case complaints handling: A simple case for languages that have an explicit state concept (e.g., Petri nets).
- Case travel agency 1-4: Different variants of a small process with increasing complexity.

We challenge people to model (and if possible also enact) these cases in their own favorite language. Please post solutions directly via the mailing list of the "Petri nets and Pi calculus for business processes" working group.
 (cf. http://www.smartgroups.com/groups/petri_and_pi).

Contact petri_and_pi-owner@smartgroups.com or one of its members to join.