

OMG's MARTE Information Day

Modeling & Analysis of Real-time & Embedded Systems

Wednesday, December 12, 2007

Agenda

8:30 – 9:30 Keynote : A “Model” Decision: Thoughts on Modeling Real-time and Embedded Systems

Bran Selic, Distinguished Engineer, IBM

9:30 – 9:45 Morning Break

9:45 – 10:00 Introduction

Laurent Rioux, Research Engineer, THALES

10:00 – 10:30 Non-Functional Properties Language

Huascar Espinoza, Doctor, CEA

MARTE introduces a new language to specify non-functional properties (e.g., real-time properties, memory footprint, power consumption) in your UML model. This tutorial will present this language, how to extend it and also how to use it.

10:30 – 11:00 Time Model

Frederic Mallet, Maitre de conference, INRIA

The notions of time and clocks are very important in the specification of real-time and embedded systems. MARTE introduces a time model that builds on top of UML. This tutorial will present the different clock systems supported by MARTE (Asynchronous, Synchronous, Logical, Physical...) and how to use it in your UML model.

11:00 – 11:30 Resources Modeling

Sebastien Gerard, Doctor, CEA LIST

A real-time and embedded system is characterized by limited resource availability. It is therefore essential to model these resources to study how the application can best allocate resources. The MARTE profile offers capabilities to model hardware resources (Processors, Memories, Buses...) as well as software resources (Threads, Tasks, processes...). This tutorial will present all resources supported by MARTE and briefly how to use them in the design of your system.

11:30 – 12:00 Generic Quantitative Analysis Modeling

Murray Woodside, Professor, University of Carleton

MARTE replaces the old standard SPT (Scheduling, Performance and Time). This Session will present the generic quantitative analysis modelling framework provided by MARTE.

12:00 – 14:00 Lunch

14:00 – 14:45 Performance Analysis

Murray Woodside, Professor, University of Carleton

MARTE replaces the old standard SPT (Scheduling, Performance and Time). This tutorial will present how to do performance analysis on your MARTE models and the different kinds of performance analysis (Queuing Networks, petri net, simulation...) that can be applied.

14:45 – 15:15 Scheduling Analysis

Julio Medina, Doctor, University of Cantabria

MARTE replaces the old standard SPT (Scheduling, Performance and Time). This tutorial will present how to do scheduling analysis on your MARTE models and the different kinds of scheduling analysis (RMA, DMA, holistic techniques...) that can be applied.

15:15 – 15:30 Afternoon Break

15:30 – 16:30 Early Adopter Case Study: MARTE Experimentation in Industry - Using MARTE to Design an Avionic System – THALES

THALES has strongly contributed to defining the MARTE profile. This presentation introduces a THALES case study related to the application of MARTE in the avionics domain. This presentation will show you how to use MARTE to design and analyze a real-time and embedded system and the benefits you can have by using this approach. It will also include demonstrations of the tools that have been developed by THALES in the context of this case study.

16:30 – 16:50 PapyrusUML / MARTE

Sebastien Gerard, Research Engineer, CEA

This presentation will introduce the implementation of the MARTE profile in the Open Source UML tool: PapyrusUML (<http://www.papyrusuml.org>)

16:50 – 17:15 MARTE/AADL Support Demonstration – THALES

This presentation will show you how MARTE support the AADL (Architecture Analysis Design Language) from the SAE. During this presentation, we will demonstrate that you can design AADL applications with MARTE and generate AADL code from this model.

17:15 – 17:30 Conclusions - THALES