SPARX SYSTEMS

ENTERPRISE ARCHITECT

User Guide Series

Modeling and Analysis of Real Time Embedded Systems (MARTE)

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Date: 10/11/2023

Version: 16.1

CREATED WITH ENTERPRISE ARCHITECT

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Modeling and Analysis of Real Time Embedded Systems (MARTE)

The OMG Modeling for Real Time Embedded Systems (MARTE) UML profile adds capabilities to UML for model-driven development of Real Time and Embedded Systems (RTESs) including their software and hardware aspects.

RTESs are mainly used in critical domains where high system dependability is required and expected. The behavior of RTESs is driven by their environment and is used in critical domains where unsafe conditions, posing threat to human life or environment, can be caused by failures of the RTES being tested.

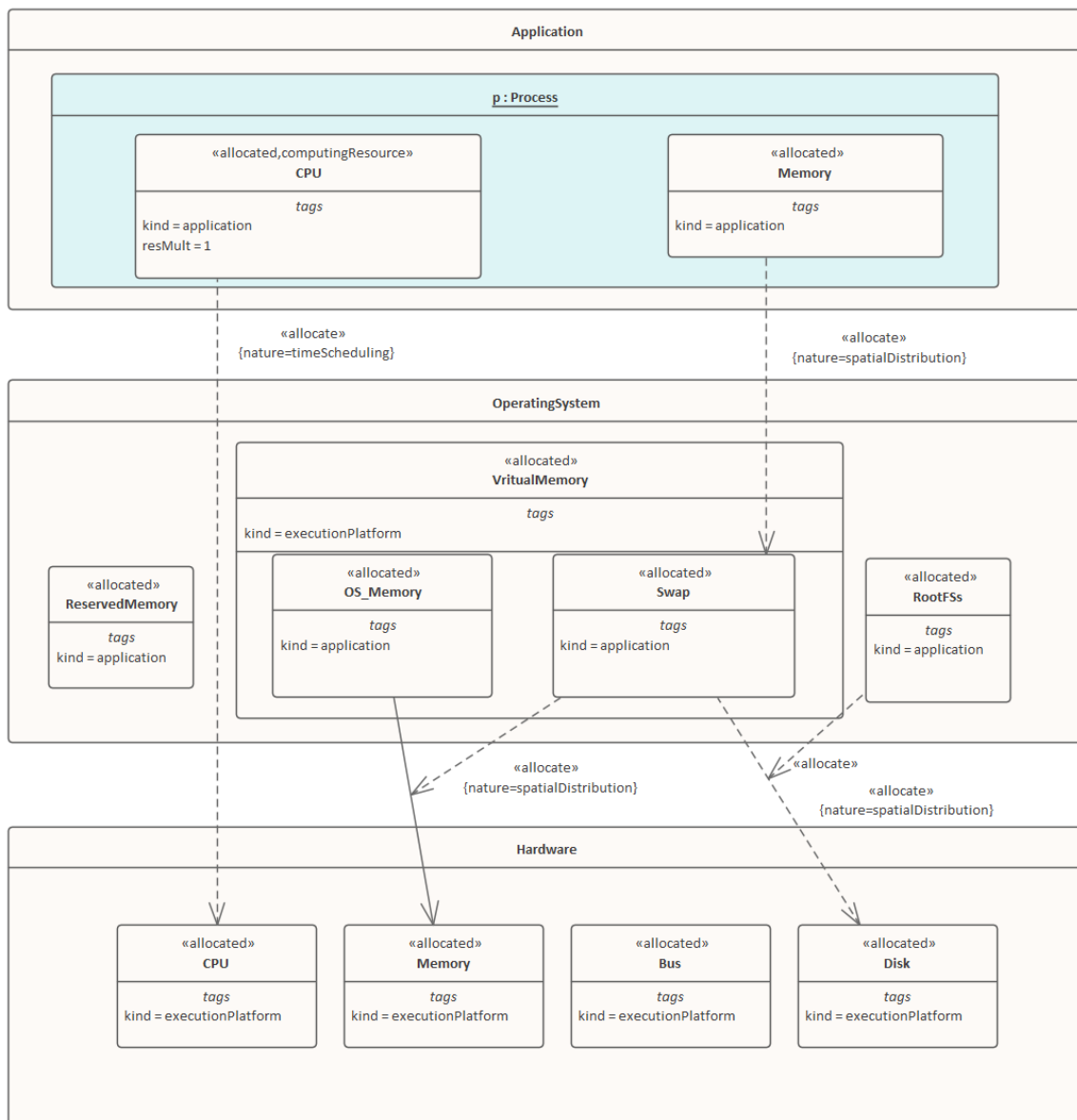These systems typically work in environments with large numbers of interacting components.

Figure 11.8 - Allocation of Unix processes OMG specification Formal/2011-06-02 UML Profile for MARTE

From Release 15.0, Enterprise Architect delivers support for the OMG's MARTE profile. It:

- Provides a foundation for transformation from UML models into a variety of analysis models
- Addresses the modeling of RTES software or hardware and their shared relationships, and the annotation of

application models for analysis of system properties

- Provides qualitative and quantitative modeling constructs for the development of RTESs and both high- and low-level modeling constructs; for example, specification purposes and implementation purposes respectively

- Allows choice of styles that best suit the modeler's present needs, and does not enforce methodologies for modeling RTESs

- Is amenable to adoption by modelers as it does not require expertise or a steep learning curve in model analysis techniques or their inner workings

- Supports current mainstream real-time technologies, design paradigms, and model analysis techniques

The MARTE profile is available in the Unified and Ultimate Editions of Enterprise Architect.