

A New Robotic Technology Middleware
and
Robotic Technology Component
Interoperability Demonstration

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Today

We are pleased to announce

a NEW

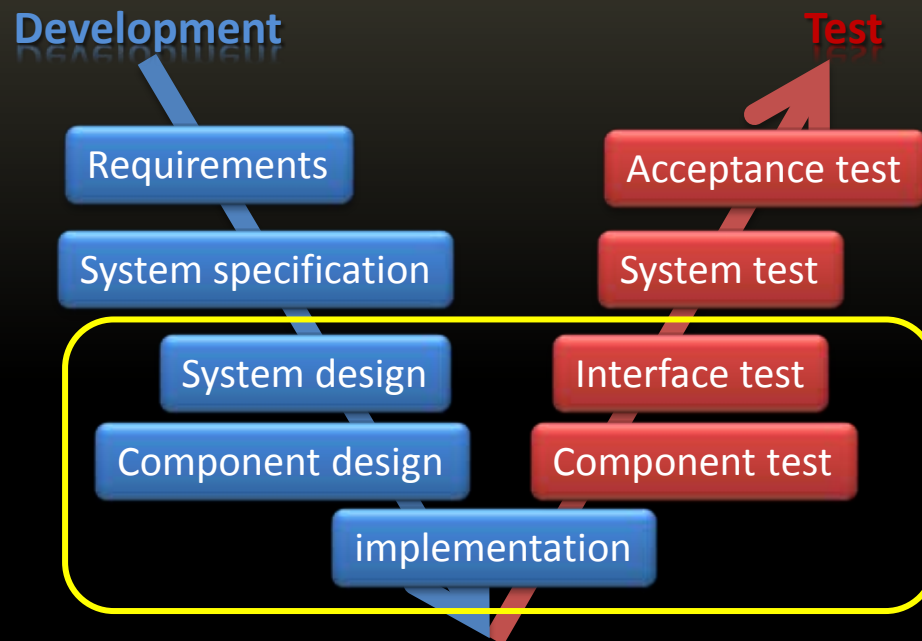
Robotic Technology Middleware

Agenda

- Concept
- Architecture
- Main features
- Demonstration

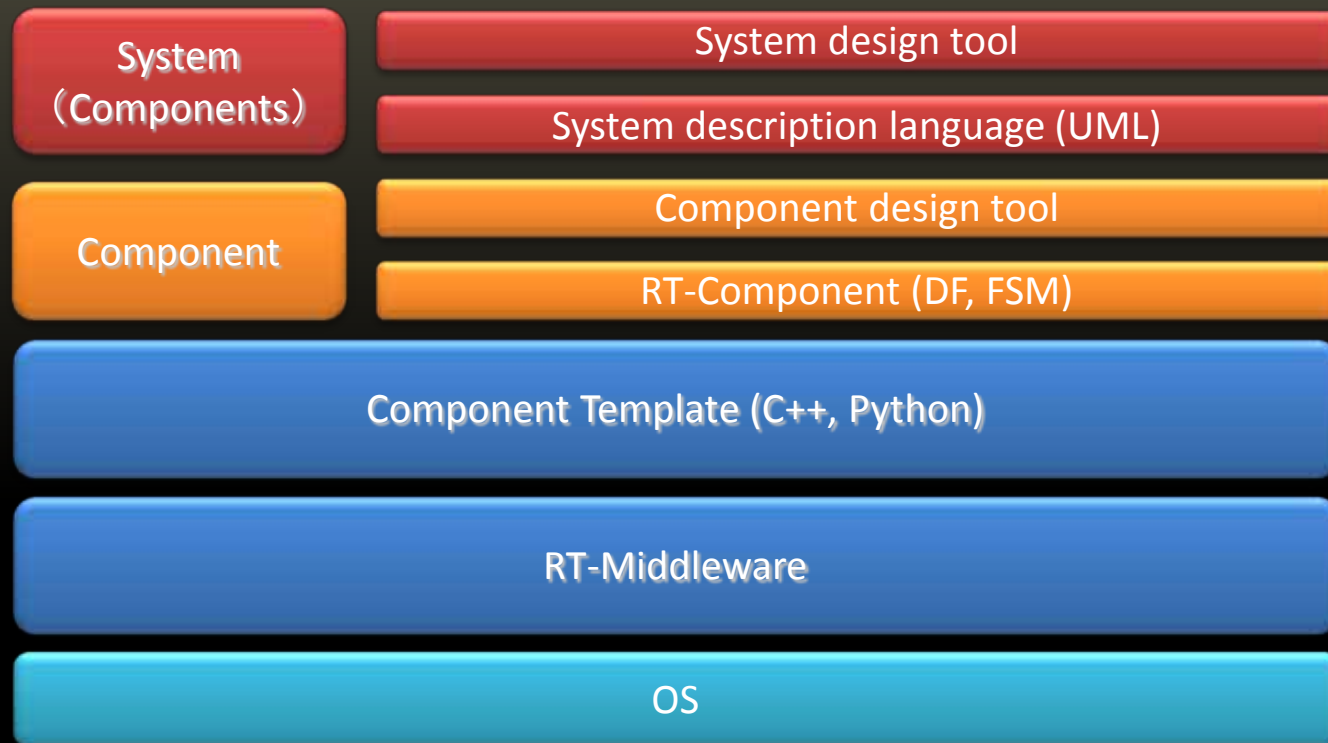
Concept

Bring power of MBD and V-model to
real-time robotic software development



Architecture

System is modeled as UML diagram



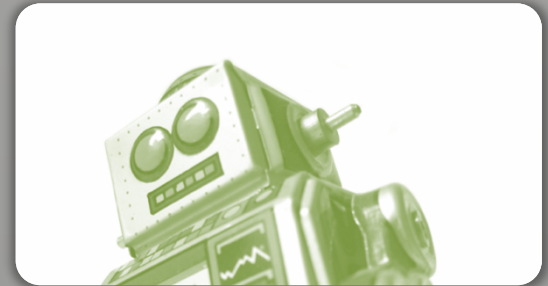
Main Features



Model-Based
Development



State Machine
Component



Real-time
Middleware

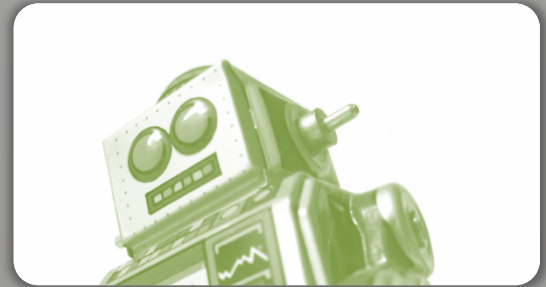
Main Features



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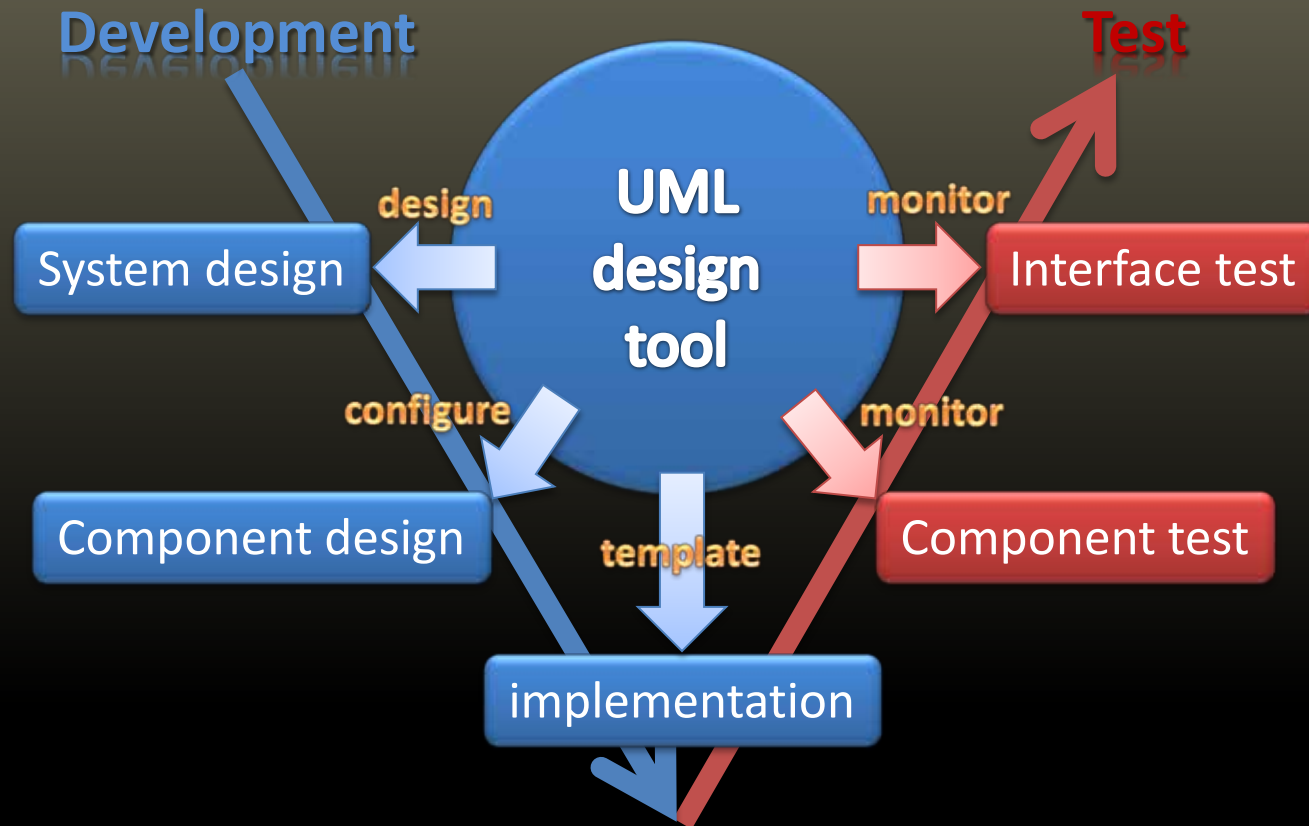


Real-time
Middleware

Model-Based Development

- Users can do with UML editor:
 - Design a system
 - Configure components in the system
 - Generate RT-Component template
 - Monitor components

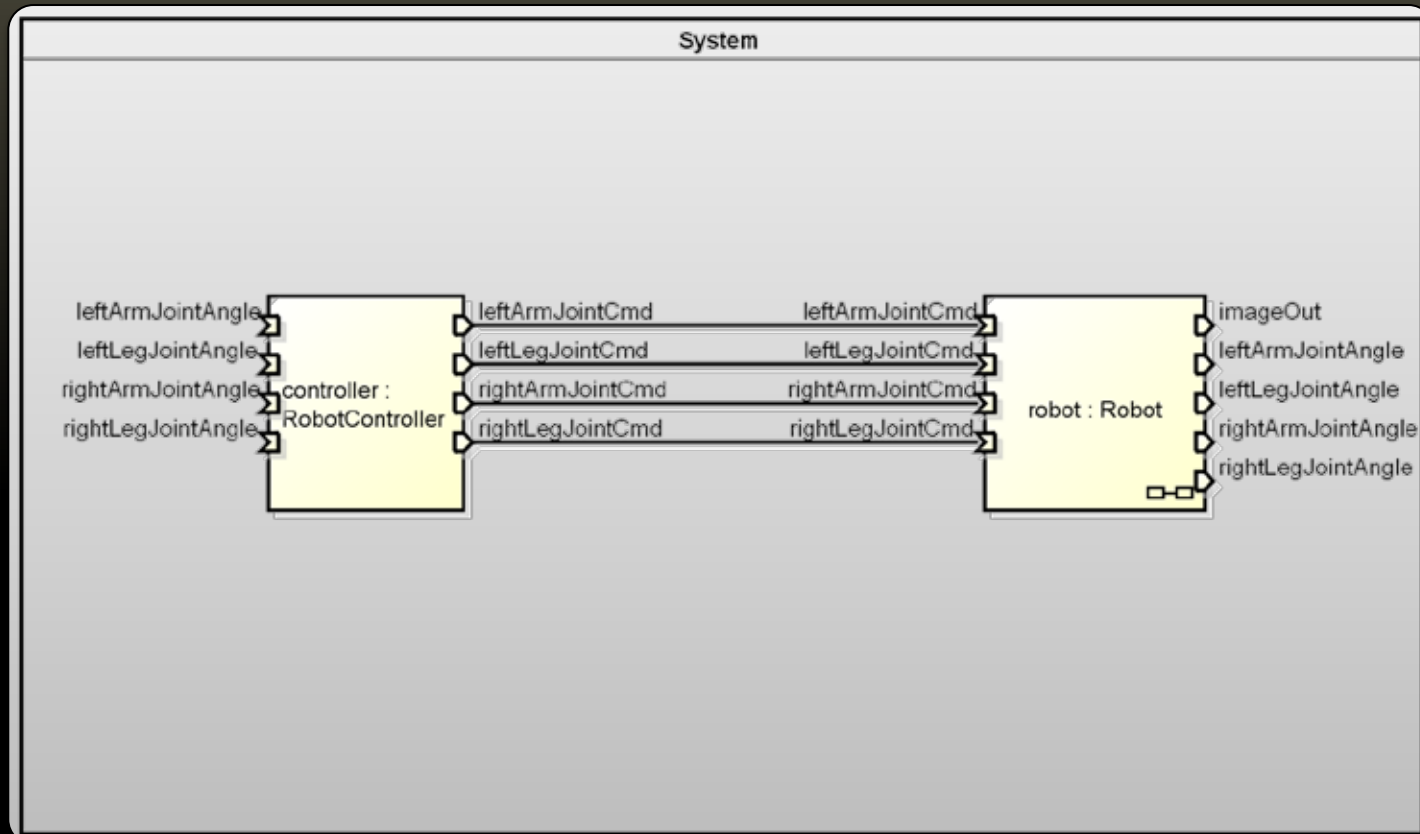
Model-Based Development



UML design tool is the center place of development process

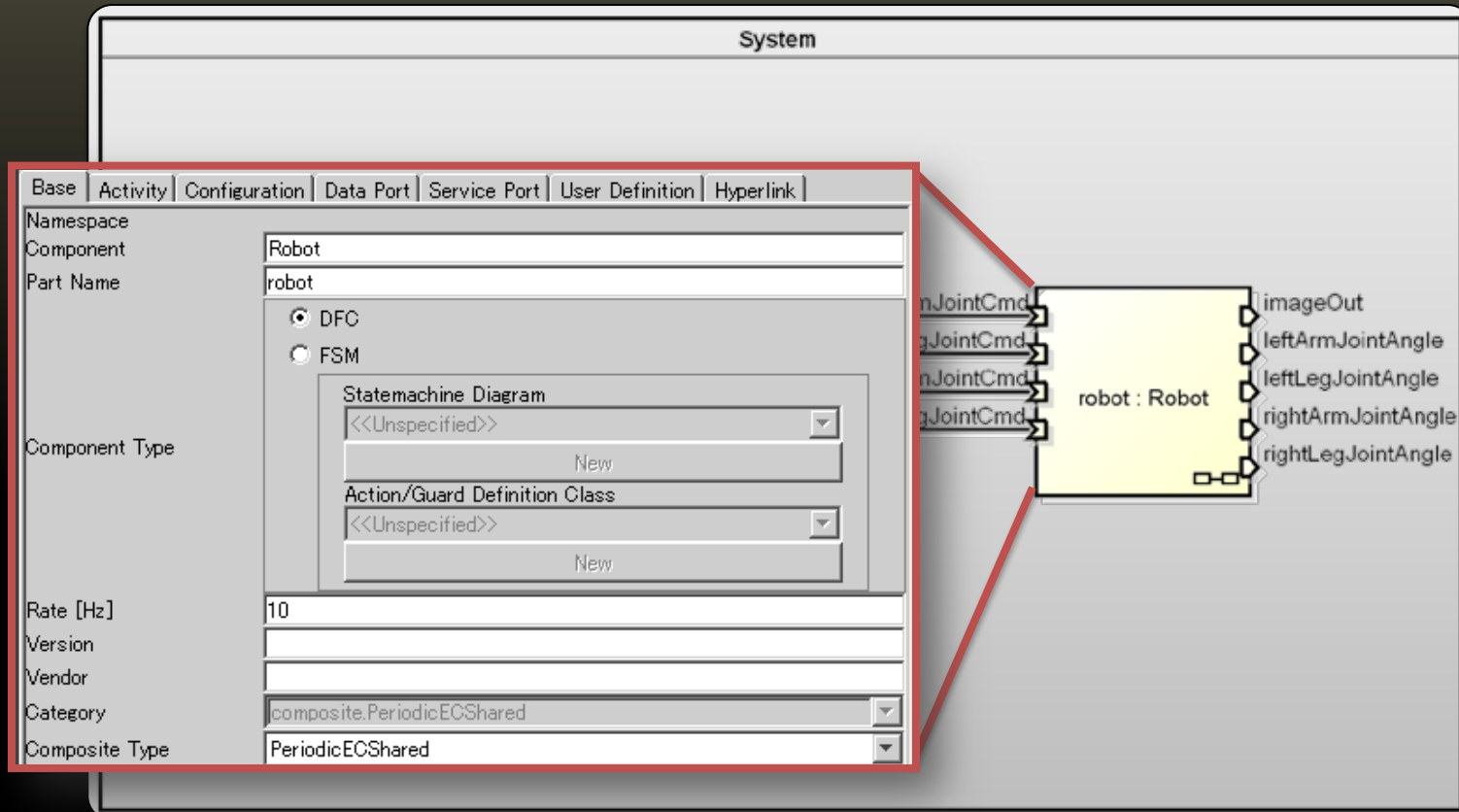
Model-Based Development

- Design a system with UML



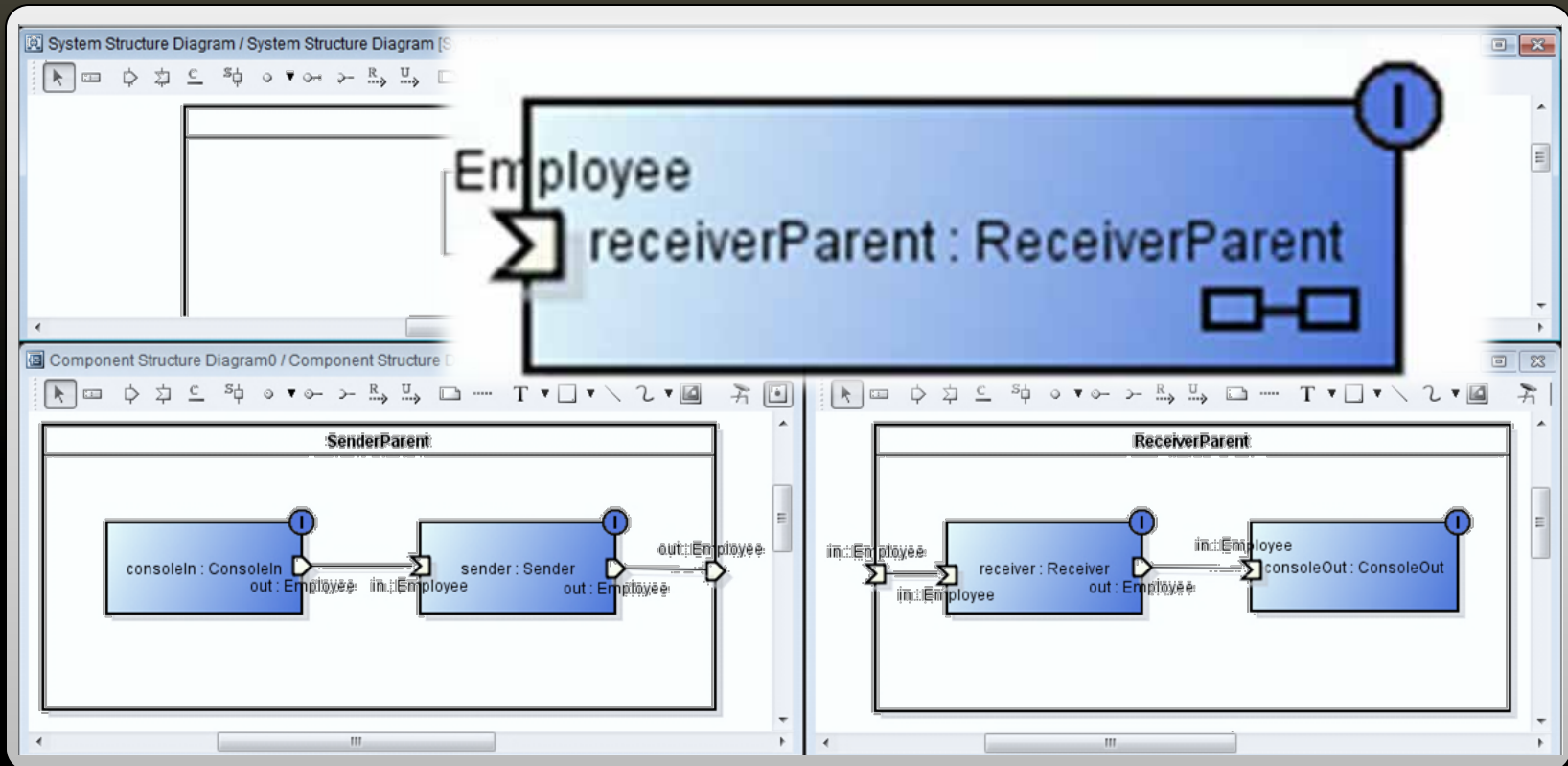
Model-Based Development

- Configure components in the system



Model-Based Development

- Monitor components in the system



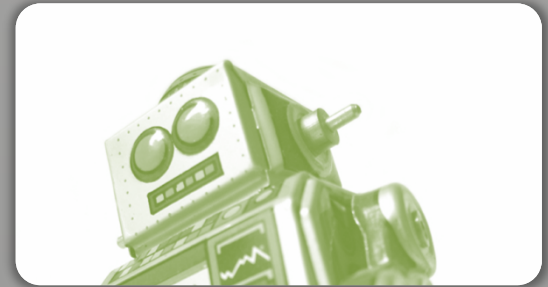
Main Features



Model-Based
Development



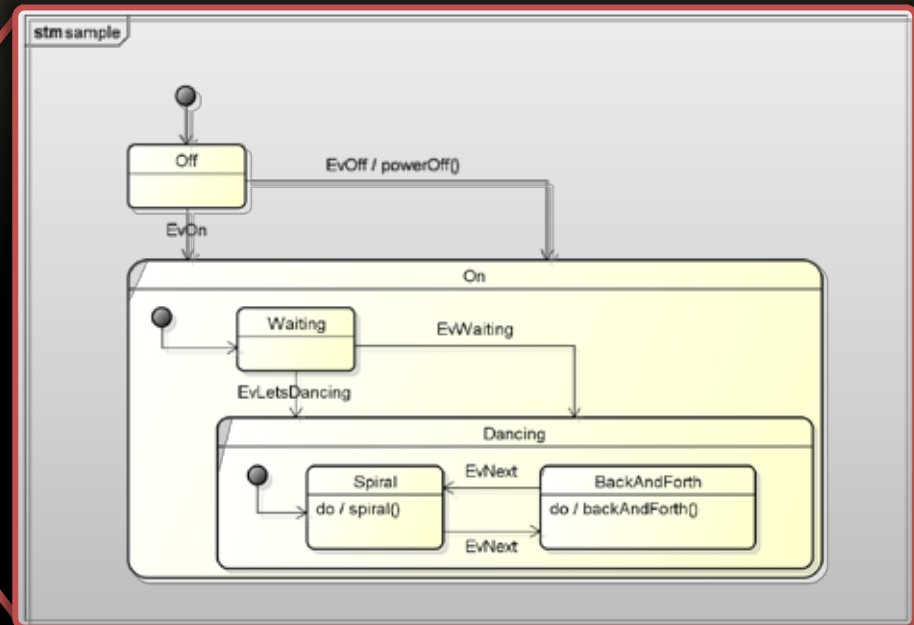
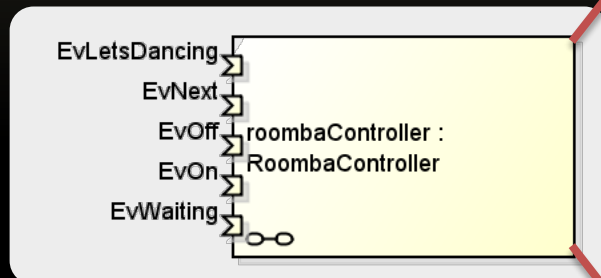
State Machine
Component



Real-time
Middleware

State Machine Component

- Embedded FSM in Data Flow Component
 - Events are input from data ports
- FSM is modeled with UML Statechart



Why not Statechart?

- Lots of robotic software includes state machines in its code
- Coding state machine by hand makes things bad
 - Only *you* can understand it
 - For a few months...

Leave your efforts in the reusable way

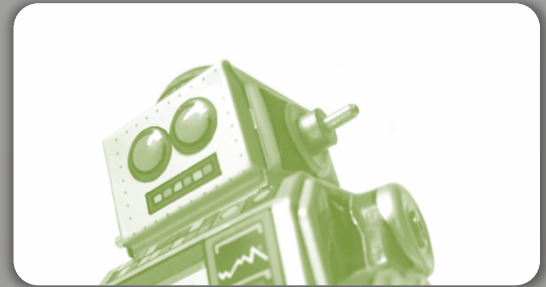
Main Features



Model-Based
Development



State Machine
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Real-time
Middleware

Real-time Middleware

- Enhancements for RTOS
 - Runtime configuration
 - Fast data port types
 - Bus communication protocols

Full functionality is available

Demonstration

2 Roombas are synchronously changed their action by gestures

- To show *interoperability* of Honda RTM and OpenRTM-aist
 - Honda RTM provides:
 - Action state component (mode changer)
 - Roomba component (controller)
 - OpenRTM-aist provides:
 - Kinect component (UI)
 - Roomba component (controller)

Enjoy it!