Domain-Specific Modeling: Examples
20 examples

- Various targets:
  - Assembler, C, Java, C++, Python, C#, TTCN-3, Simulink, XML...

- Various tasks:
  - Application development, architecture design, testing, verification and validation, service creation...

- Various users:
  - Programmers, service engineers, test engineers, interaction specialists, architects, domain experts...
Financial services
VoiceMenu for microcontroller
PLC heating application
Fish farm automation system
Automotive infotainment system
Multi-view mobile app development
Smartphone applications
Mobile point-of-sale system
Sports computer applications
Document engineering
Service creation environment
Railway track control system
RTOS configuration

Configuration File: TOPPERS 1.1, November 2012 17:38

Graph Editor: TOS (Top of the Stack)

RTOS Configuration:

Creat_Tsk(tsk, \{ TASK, 0, 0, init_task, 256, NULL \});
Creat_Tsk(tsk, \{ TASK, 2, 0, main_task, 256, NULL \});
Creat_Tsk(tsk1, \{ TASK, 4, 1, task1, 256, NULL \});
Creat_Tsk(tsk2, \{ TASK, 5, 2, task2, 256, NULL \});
Creat_Tsk(tsk3, \{ TASK, 7, 3, task1, 256, NULL \});

CFG_INT(tsk, \{ INT_SERIAL_RX, \{ TA_act, 3 \}; CFG_INT(tsk, \{ INT_SERIAL_TX, \{ TA_act, 2 \}; (CFG_INT(\{ INT_TIMER, \{ TA_act, TA_EDGE, 1 \};)

DEF_ISR(tsk, \{ TA_act, timer_handler \});

ATT_ISR(TA_NULL, SIO_PORTID, INT_SERIAL_TX, SIO_ISR, 1); ATT_ISR(TA_NULL, SIO_PORTID, INT_SERIAL_RX, SIO_ISR, 1);

ATT_IRQ(0, print_banner); ATT_IRQ(SIO_PORTID, send_initialize);

ATT_IRQ(0, timer_initialize);
Web application testing
VoIP telephony testing
Test vector generation & verification
Automotive function design
Automotive architectures: SW & HW
Printer HW&SW co-development
Why DSM works?

- Need to fit only **narrow** area of interest!
- **Modeling is Domain-Specific**
  - Works for one application domain, framework, product line
  - Language has concepts people already are familiar with
  - Models operate at right level, not visualize code
- **Generator is Domain-Specific**
  - Generates just the code needed from models
    - Efficient full code
    - No manual coding afterwards
    - no round-tripping problems
  - Generator can link to existing code, library, platform
  - Can produce Assembler, 3GL, object-oriented, XML, etc.
Thank you!

For more examples, case studies, analyst reports, visit www.metacase.com