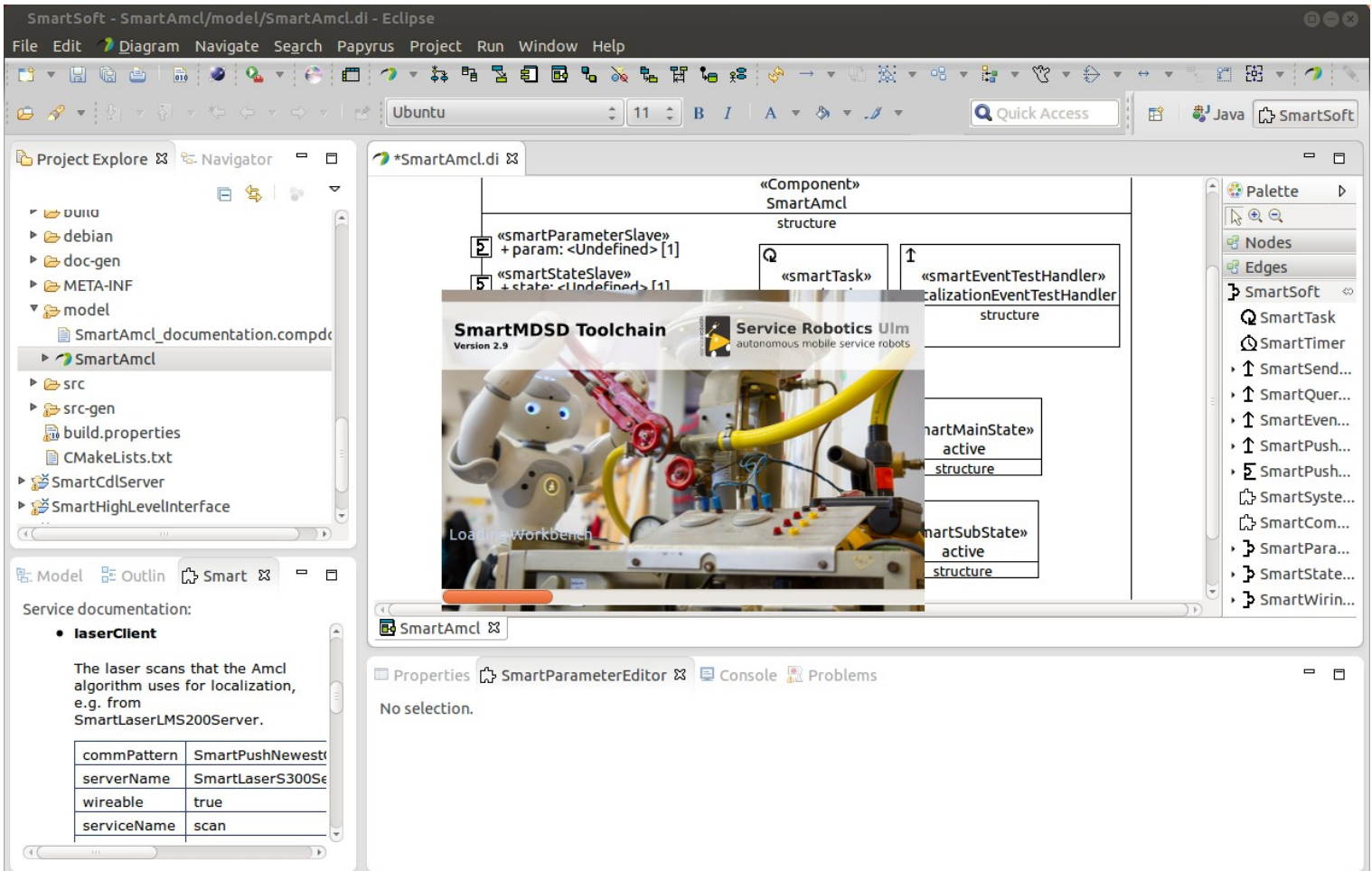




SmartSoft SmartMDSD

Open Source Integrated Model-Driven Development Environment for Robotics Software



The screenshot shows the SmartSoft Eclipse IDE interface. The main editor displays a UML-like diagram for a component named 'SmartAmcl'. The diagram includes several internal components: '«smartParameterSlave» + param: <Undefined> [1]', '«smartStateSlave» + state: <Undefined> [1]', '«smartTask»', and '«smartEventTestHandler» LocalizationEventTestHandler structure'. There are also state machine elements like '«smartMainState» active structure' and '«smartSubState» active structure'. A video player is overlaid on the diagram, showing a robot arm and the text 'SmartMDSD Toolchain Version 2.9' and 'Service Robotics Ulm autonomous mobile service robots'. The left sidebar shows a project explorer with folders like 'ubuntu', 'debian', 'doc-gen', 'META-INF', 'model', 'src', 'src-gen', 'build.properties', 'CMakeLists.txt', 'SmartCdlServer', and 'SmartHighLevelInterface'. Below the explorer is a 'Service documentation' panel for 'laserClient', which includes a description: 'The laser scans that the Amcl algorithm uses for localization, e.g. from SmartLaserLMS200Server.' and a table of parameters.

| | |
|-------------|------------------|
| commPattern | SmartPushNewest |
| serverName | SmartLaserS300Se |
| wireable | true |
| serviceName | scan |

Component Developer

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- A **structured approach** (separation of roles) to manage software efforts and system complexity in building your real world robotic applications
(The SmartSoft Approach)
- An **integrated toolchain** (model driven software development) that realizes this approach and supports your system development
(The SmartMDSD Toolchain)
- A **set of reusable software components** for localisation, navigation, mobile manipulation, task coordination, human robot interaction, object recognition and many more for immediate reuse in your applications
(Components)



SmartSoft SmartMDS

Open Source Integrated Model-Driven Development Environment for Robotics Software

SmartMDS
(service oriented
component model)

- Meta-Model
- Toolchain

SmartSoft
(implementation)

- CORBA / SmartSoft
- ACE / SmartSoft
- Linux, Windows, etc.

SmartTCL
(Task Coordination Language)

VML
(Variability Modeling Language)

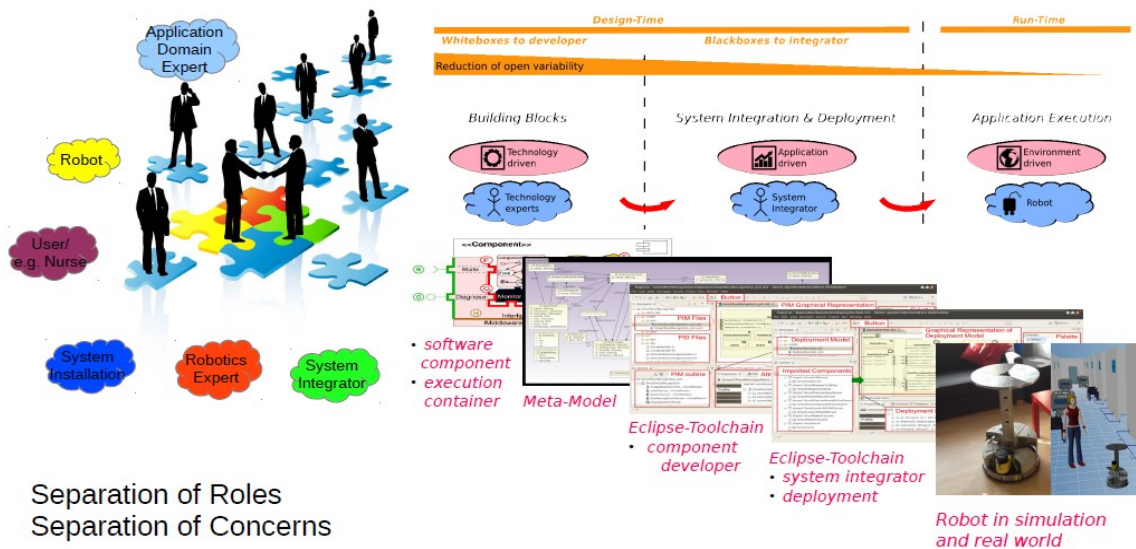
Domain Specific Languages

DSL Communication Object

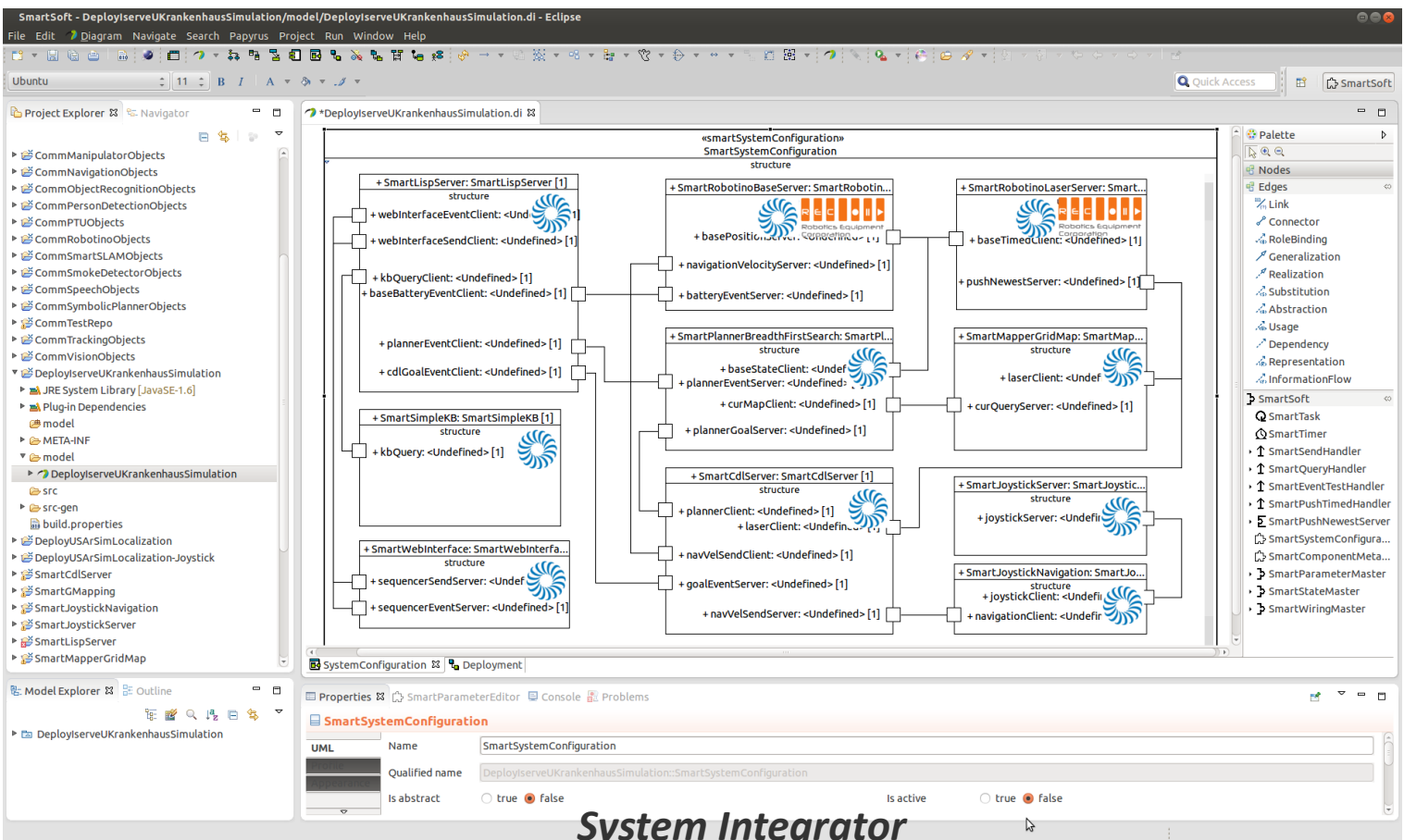
DSL Parameter

DSL Documentation of Components

MDS (SmartMDS) / SmartMARS (Meta-Model) / SmartSoft (Execution Platform) / SmartTCL (DSL)



Separation of Roles
Separation of Concerns



System Integrator