Artop – AUTOSAR Tool Platform.
A Shared Platform for AUTOSAR Tool Development.

Eclipse Embedded Day Stuttgart, June 25th, 2009

Christian Knüchel (presenter), Michael Rudorfer (BMW Car IT)
Stefan Voget, Philippe Favrais (Continental)
Stephan Eberle, Gerhard Steininger (Geensys)
Aldric Loyer (Peugeot Citroën)
Artop – AUTOSAR Tool Platform.

Overview.

- Introduction to AUTOSAR
- Motivation for Artop
- Technical Overview
- Artop User Group
- Discussion
AUTOSAR Introduction.

Overview.

– AUTOSAR is a standardized software architecture for automotive E/E systems, i.e. electronic control units (ECUs).

– Basically AUTOSAR standardizes:
  – the operating system
  – a middleware for the abstraction of local and remote communication
  – the description of interfaces between applications
  – the description of a complete E/E system
AUTOSAR Introduction.

AUTOSAR Architecture.
AUTOSAR Introduction.

AUTOSAR Methodology.

Processing step: engineering work or generation

Generator for COM

System Constraint Description

Generator for System Configuration Description

ECU extract of System Configuration

Component API e.g. app.h

Component API Generator

ECU Configuration Description

Basic SW Module A extract of ECU config

Basic SW Module A

Basic SW

Other Basic SW Generator

MCAL-Generator

AUTOSAR RTE Generator

Generator for OS

COM

Generator for COM

ECU Configuration Description

list of SW Components

RTE Extract of ECU Config

AUTOSAR ECU Configuration Generator

MCAL-Generator

System Configuration Description

Generator for ECU

Generator for ECU Configuration

Component API Generator

SW-Component Description

System Constraint Description

SW-Component Description (HW only)

ECU Resource Description (HW only)

ECU Resource Editor

ECU Editor

SW-Component Editor

SW - Component Editor

Tool support required
Motivation for Shared Platform.

Current Situation
- Similar redundant development on basic AUTOSAR functionality by every AUTOSAR tool vendor for every new AUTOSAR release/revision.
- Tool vendors do not differentiate in this basic functionality but it is mandatory for the actual work in tool vendor’s area of expertise.

Better Approach
- Cooperate on the non-competitive basic functionality by creating a shared / open platform for AUTOSAR tools.
- Cultivate an ecosystem for AUTOSAR tools.
Technical Overview.
Architecture Layers.

- **Commercial product extensions**
- **Artop**
  - Tool Vendor/User
  - Artop AUTOSAR Layer (AAL)
    - AUTOSAR dependent components
  - Artop User Group
  - Eclipse Complementary Layer (ECL)
    - AUTOSAR independent components
- **Eclipse Platform**
  - Eclipse Foundation
Technical Overview.
Components in Artop 1.1.

- AAL
  - AUTOSAR Meta Models & XML Serialization
  - AUTOSAR Workspace Management

- ECL
  - EMF & Eclipse Platform Utilities
  - Basic Workspace Management
  - Explorer & Editors
  - Validation
  - Basic Validation
Artop User Group.
Overview and License.

- AUTOSAR regulations prevent the disclosure of unpublished AUTOSAR specifications to non-AUTOSAR members.
  - Therefore Artop cannot be an Eclipse project
  - and a separate organization is necessary to host the development of Artop → the Artop User Group.

- Due to these reasons Artop uses its own software license that is aligned with the concepts of the EPL, it contains the same elements that are crucial for a successful ecosystem:
  - The platform can be commercially distributed.
  - It can be extended with commercial plug-ins.
  - It is available free-of-charge to the Artop / AUTOSAR community.
  - Changes are contributed back.

- Additionally the Artop license allows for the contribution of code that is not based on AUTOSAR to Eclipse. That means moving certain parts of Artop to Eclipse is possible.
Artop User Group.
Organization.

- The community that develops Artop is organized as an AUTOSAR User Group, i.e. the Artop User Group.

- It is a group of AUTOSAR members and partners, i.e. users of AUTOSAR, with a special interest in AUTOSAR tools.

- Was launched in October 2008 and the members currently are:
  - Continental
  - Geensys
  - Peugeot Citroën (PSA)
  - BMW Car IT

- New members are welcome to join
  - an AUTOSAR membership is required

- More information is available on the Artop website at:
  http://www.artop.org
Discussion.