Eclipsecon 2013

26 Mar 2013  16:15 – 16:45
Room : Back Bay

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  (The Boeing Company)
The parallel industries in Embedded SW Engineering

1. Automotive
2. Aerospace

The parallel Collaboration concepts

1. Eclipse
2. AUTOSAR
This ALM is a confluence of two parallels

Aerospace

Automotive
Challenges for Aerospace & Automotive industries

- Support development of software compliant to Safety standards like DO-178B and ISO 26262
- Dependency analysis
  - Project overview
  - Traceability reports
  - Package/Component Analysis
- Variant management
- Release management
- Product Line Engineering features
- Integrated RDCT
- Toolchain Integration
- Data exchange with customer

Safety Standards
Engineering Efficiency and Quality
Manage Complexity
Complete Lifecycle Support

iCTeam, a confluence of parallels
DiCTeam, a confluence of parallels

Improve Engineering Efficiency and Quality

Changes & Requirements
- ClearQuest
- JIRA
- DOORS

Design
- Simulink
- AUTOSAR
- Artop

Customer

Dependency Viewers

Traceability Matrix Reports

Vertical

Horizontal

Configuration Management
- Clear Case
- SVN
- GIT

Tasks & Assignments

A-TASK
- A-TASK-1
- A-TASK-2
- A-TASK-3

B-TASK
- B-TASK-1
- B-TASK-2
- B-TASK-3

MY DASHBOARD

CODE Files

TEST Cases

Improve Engineering Efficiency and Quality
iCTeam, a confluence of parallels

Complete Lifecycle Support

Requirements
Requirements Management
Design
Model Based Development
Model Traceability
Impact Analysis
Dependency Mgmt
Configuration
Automotive Standards Editors
Workflow
Collaboration
Build Mgmt
Jenkins
Continuous Integration
Test Mgmt
Traceability
ISO 26262

Software Sharing Support

Verification & Validation

Software Sharing

Callb Data Manager
Calibration Data Manager

Document Management

Document Mgmt

Project Mgmt

Complete Lifecycle Support

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Managing Complexity

Feature Model

Family Model

Product Line Management

Documents & Artefacts

Code

Product Lines

P1

F1

F1.1

F2

F2.2

P2

F1

F1.2

F3

F3.1

P3

F1

F1.2

F2

F2.1

F3

F3.2

iCTeam, a confluence of parallels
VDC Research reports that adherence to ISO 26262 and AUTOSAR is expected to increase significantly in the next two years.

ISO 26262 is a Functional Safety standard, titled "Road vehicles -- Functional safety"

The standard ISO 26262 is an adaptation of the Functional Safety standard IEC 61508 for Automotive Electric/Electronic Systems. ISO 26262 defines functional safety for automotive equipment applicable throughout the lifecycle of all automotive electronic and electrical safety-related systems.

iCTeam, a confluence of parallels

ISO 26262 Classification Results

iCTeam is qualified as per ISO 26262 standard to support Automotive embedded software development of safety level of up to ASIL-D
iCTeam, a confluence of parallels

Improve Engineering Efficiency and Quality

Functional Analysis

Requirements

Product Decomposition

Tier 1: System
- System Function
  - System Design
    - Dependency
  - Design
- System Requirement
  - Requirement Trace

Tier 2: Subsystem
- Subsystem Function
  - Subsystem Design
    - Design
- Subsystem Requirement
  - Requirement Trace
  - Allocation
  - Hierarchical

Tier 3: Component
- Software Design
  - Design
  - Verification
- Software Requirement
  - Verification
  - Allocation
  - Hierarchical
- Test Procedure
- Hardware Requirement
- Automated Test
- Software Component
- Hardware Component
- Software Unit

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Complete Lifecycle Support

Change managed processes integrated directly into toolset supporting overall systems engineering approach across the full life-cycle.

Advanced test capabilities from software qualification through production and flight test

Earned Value (EV) metrics are automatically derived from engineering data as a by-product

The V-model of the Systems Engineering Process
http://en.wikipedia.org/wiki/V_model

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**iCTeam, a confluence of parallels**

**Managing Complexity**

- **Flag Ship Program Build 1**
  - Create Branch
  - Edit Artifacts / Change Report
  - Merge
  - Commit
  - Working Branches

- **Flag Ship Program - Build 2**
  - Transactions

- **Flag Ship Program - Build 3**
  - Introduce

- **International Program X - Build 1**

- **International Program X - Build 2**

- **Common Branch (User Artifacts, Action Data, etc...)**

Time →

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iCTeam, a confluence of parallels

Conformance to Safety Critical standards

Structural coverage analysis and disposition (including across variants)
System safety analysis and reporting

Automatic generation of MIL-STD-498 software documents (SRS, STP, STD, SSDD, STR, SDD, VDD, etc.)
This ALM is a confluence of two parallels

eclipse ≈ AUTOSAR
Eclipse ~ AUTOSAR: Similarities in concepts and principles

Compete Here!
Collaborate Here!
Thank You

Q & A
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[GREEN] +1 [YELLOW] 0 [RED] -1