

**Reengineering Configuration
Management
for use in a
Model Driven Design Environment**

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Agenda

- Background
- Current CM Environment
- CM in a Model Driven Environment
- Technology Infusions to Reengineer CM

Background

- JPL's role as an FFRD building R & D prototype spacecraft
- new resource and technology environments drive change
- moving to a better, faster, cheaper organization

The Classic CM Approach

Configuration management was “standardized” by the US military in

MI 1, Standards Identification

- Identification - what you have
- Control - how you change it
- Reporting - current state
- Verification - reconciling current state

Current CM Environment

- “paper paradigm” still drives most processes
- automation used to make current processes faster
- powerful tools have been implemented to develop and track some project information
- most project information is still disconnected and discontinuous
- result is a “semi-automated” CM environment

The Model Driven Design Environment

- in early phases, models are limited, abstract representations of a system
- increase in fidelity as a design matures
- contain ALL relevant information relating the to identification and performance
- connect to and reference related models
- are a better way to communicate

Technology Infusions that Enable CM in an MDDE

Modularization & Standardization

- Structured file system
- Naming conventions
- Modularized CM Services
- Utilizing Object Structures
- Modularized Security

A Structured File System

- Use a modern, robust file system to map a project's WBS and product structure
- Lays a foundation that identifies full range of project data

Comprehensive Naming System

creating a file naming convention for all project data adds another level of identification and connectivity to models

Data Type	Naming Structure	Example
Requirements Model	RREQ_MDL_model_name_rev_level.mim	RREQ_MDL_P001_C.FSM
Interface Control Dwg	INTF_DWG_no_rev_level.mim	INTF_1011900_P_001
Material Part Model	MAT_MDL_noP1_no_rev_level.mim	MAT_MDL_1011900_P_P005
Eng Change Request	ENR_enr_no_rev_level.mim	ENR_88461_B_HTM
Interface Memos	INTF_memo_number_date.mim	INTF_2004021_V01723_HTM
Schedule	SCH_schedule_element_rev_level.mim	SCH_800000_B_PLS
Budget	BUDG_BUD_element_rev_level.mim	BUDG_2004_C_X15
Specifications	SPEC_spec_no_rev_level.mim	SPEC_DS109_G_P1F

Modularized CM Services

- monolithic CM applications can be broken down into services or functions
- OMG PDM specification proposes modularizations through “enabling services”
- agent technology can be used to automate maintenance tasks previously manually generated

Utilizing Power of Objects

- Models (i. e. objects) can contain information previously distributed across multiple documents
- organizational processes must change to leverage object technology
- **must balance power of native (proprietary) formats with efficiencies of neutral (standard) formats**

STEP Plays a Key Role

- Format
- Protocol
- Language

conclusions

- A reengineered CM process becomes an enabler
- It provides communication as a first order and control as a result
