NX4 Routing Systems

PLMWorld 2006
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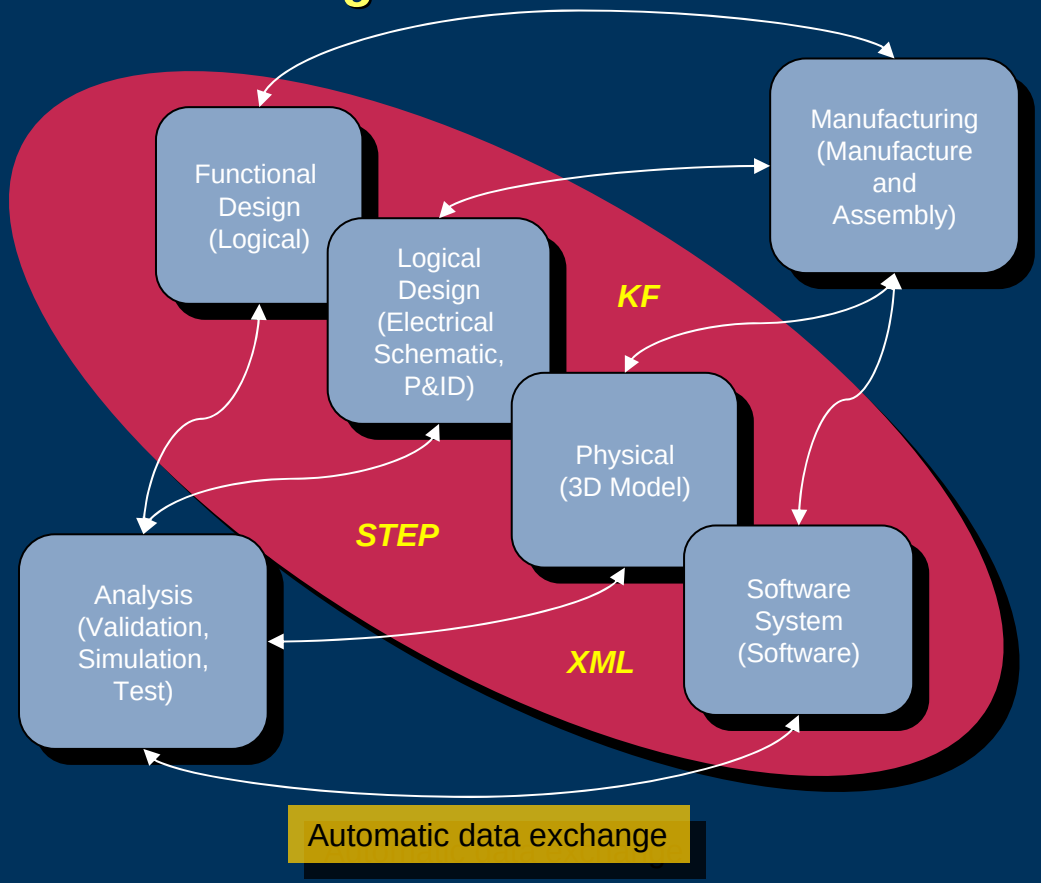
Jon Thayer – Product Manager

Routing Vision

NX will perform associative mechanical & electrical routing through an integrated, seamless design environment



Directions

- STEP Compliance
- PLM XML based data exchange
- Mechanical Analysis integration
- Knowledge Driven Authoring
- All data and administrative files managed by Teamcenter.
- P&ID (external support)

Routing Systems Strategy and Roadmap

GOAL 1 – Journaling and automation

Implement journaling throughout Routing

GOAL 2 – Mechatronic interfaces

Support external P&ID, HVAC and Electrical interfaces to 3rd party applications and Teamcenter.

GOAL 3 – Extend Routing tool suite

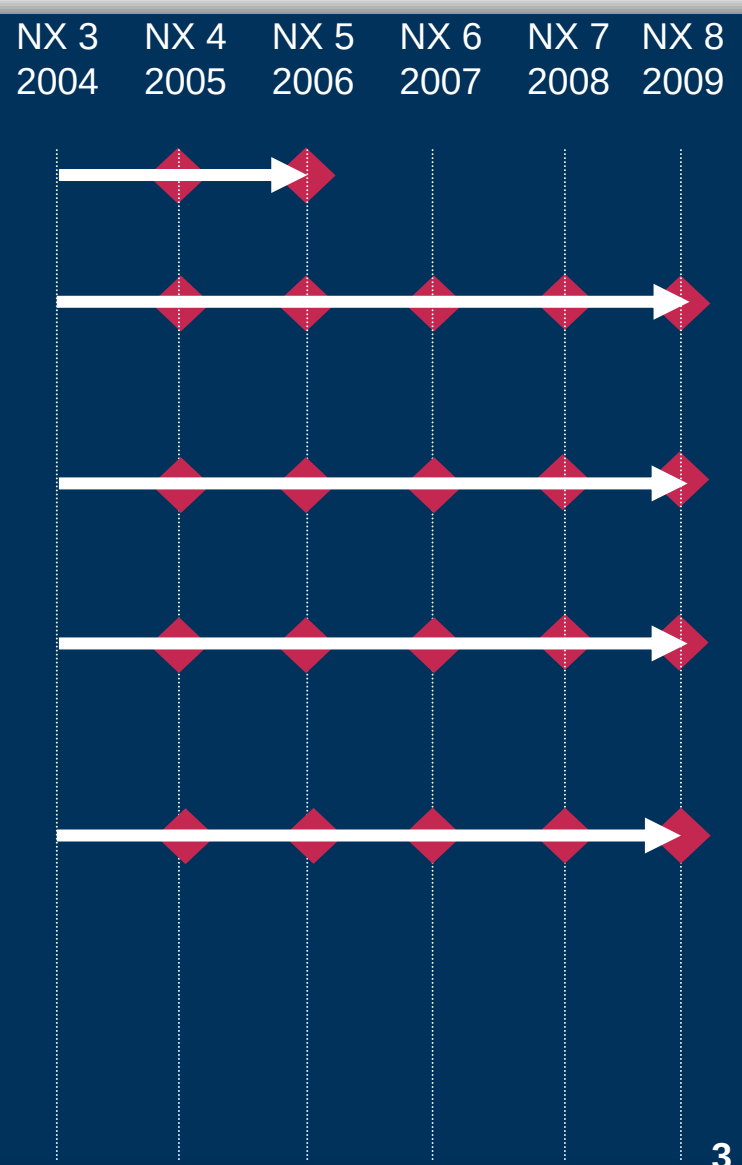
Extend features and functionality to facilitate design of routed systems

GOAL 4 – Knowledge-driven routing design automation

Intelligent processes that automatically route paths, handle tubular and flat components, select standard parts, etc.

GOAL 5 – Achieve first time quality

Continue focus on quality management with zero defects



Goal 1 – Journaling and Automation

Goal Detail

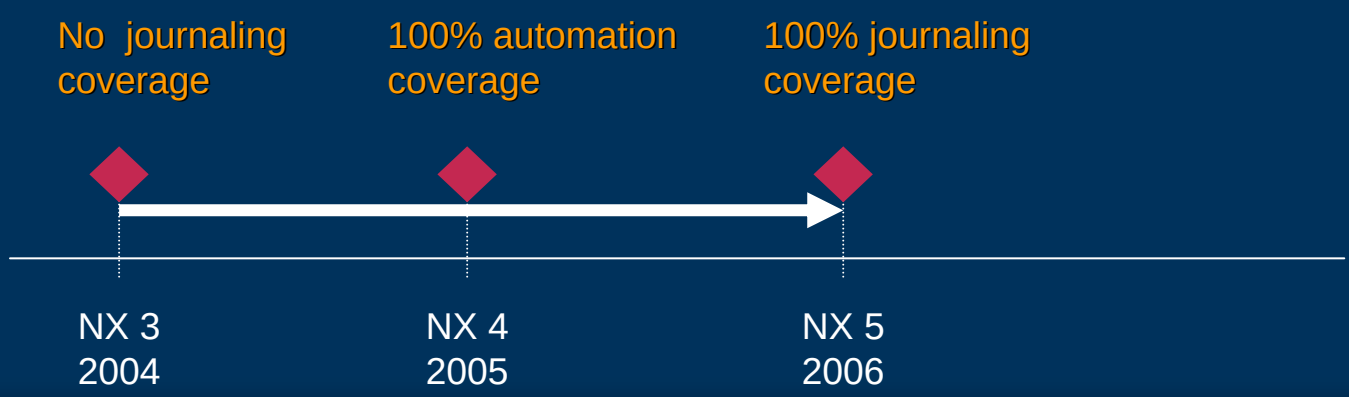
ROUTING SYSTEMS

Goal objective

- Supports corporate initiative
- Allow users to easily automate Routing functionality within NX
- Quickly capture error conditions for playback
- Provide Knowledge Fusion coverage for Routing objects

Why is this important to you?

- Facilitates customization of the Routing products
- Time savings due to automation



Goal 2 – Mechatronic Interfaces

Goal Detail

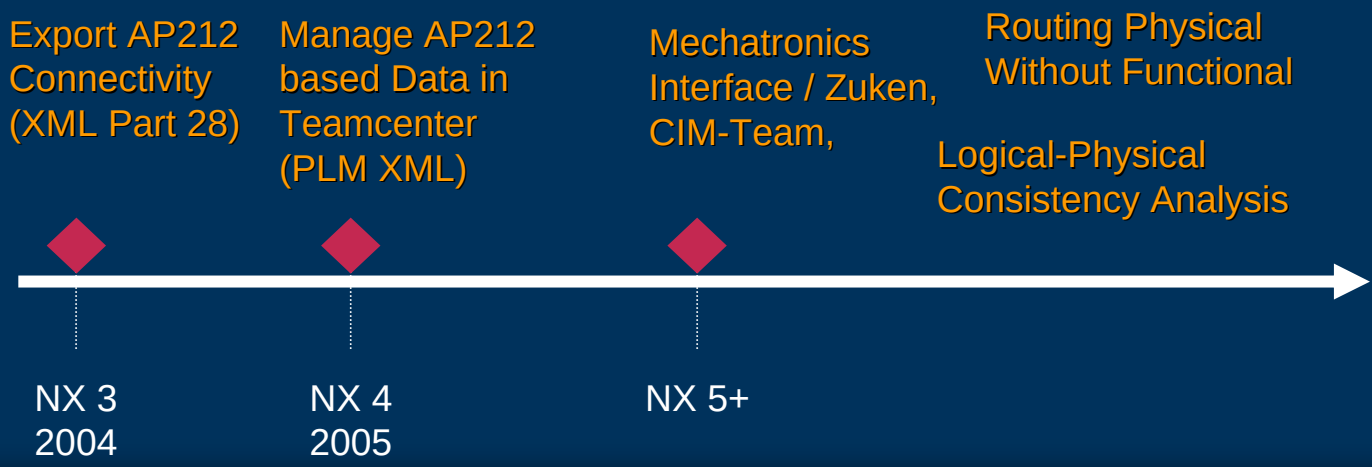
ROUTING SYSTEMS

Goal objective

- Support Mechatronics initiative
- Leverage PLMXML and AP212 to provide robust electrical data exchange mechanism
- Seamless integration for data transfer and management
- Open and documented

Why is this important to you?

- Centralized data management
- Uses established non-proprietary standards
- UGS open standards based on industry standards (STEP)
- Reduces design time thru data re-utilization



Goal 2 – Mechatronic Interfaces

Goal Projects

ROUTING SYSTEMS

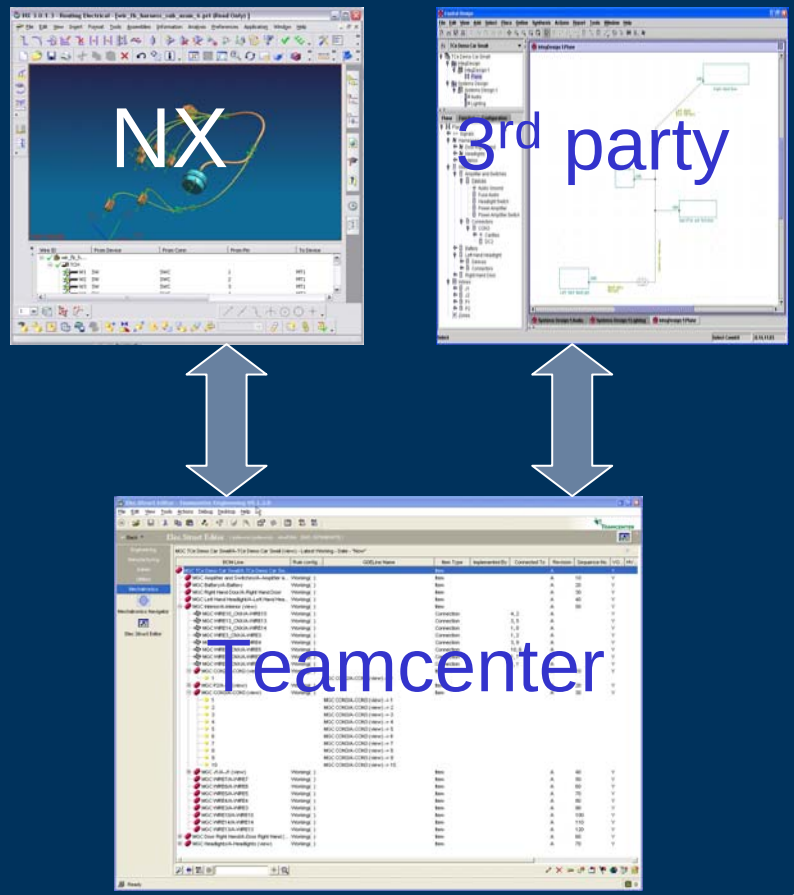
NX 4 **Enhance electrical data model**

- Revision of Electrical Routing internal data model to be compliant with the Mechatronics and AP212 data models

NX 4 **API to electrical data model**

- User function (Automation) interfaces developed to retrieve/set data defined in project number 170154 Enhanced Electrical Data Model

Mechatronics routing interfaces



Goal 2 – Mechatronic Interfaces

Goal Projects cont'd

ROUTING SYSTEMS

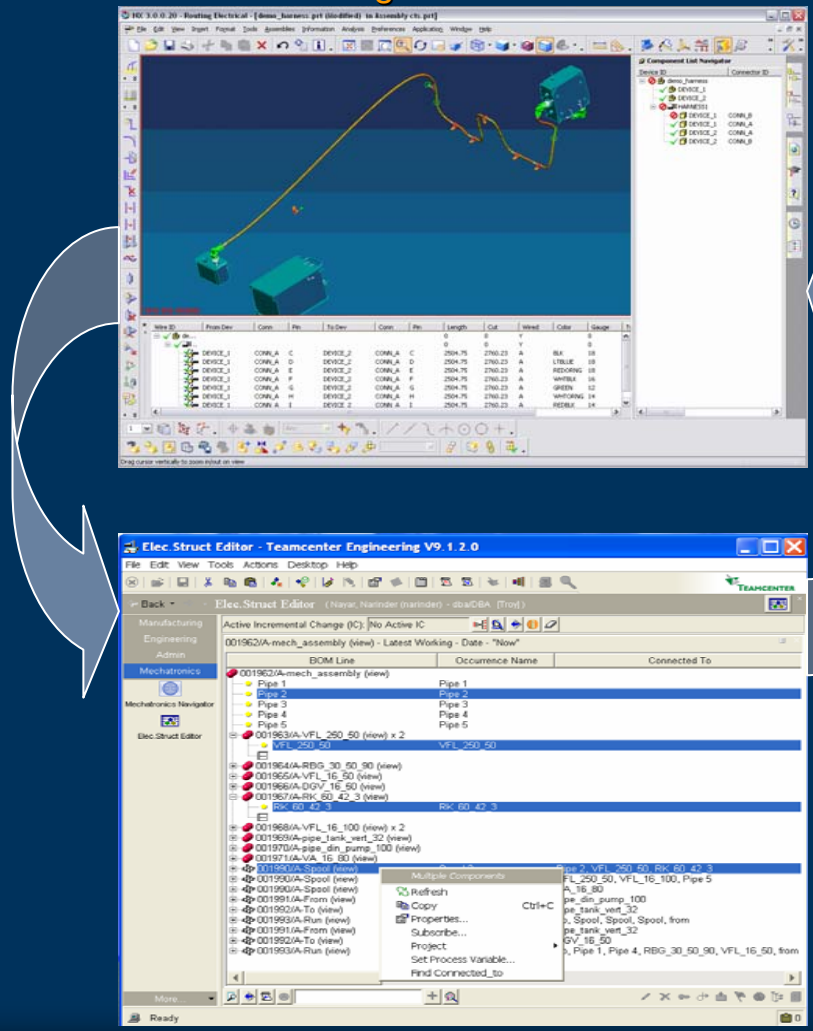
NX 4 **Mechatronics Integration**

- Complete the Electrical data integration of NX and Mentor Graphics providing customers with a best-in-class solution for ECAD/MCAD interoperability

NX 4 **Teamcenter mechanical routing integration**

- Multi release project to extend Teamcenter integration with Routing Mechanical.

Electrical Data Exchange



Goal 3 – Extend Routing Tool Suite

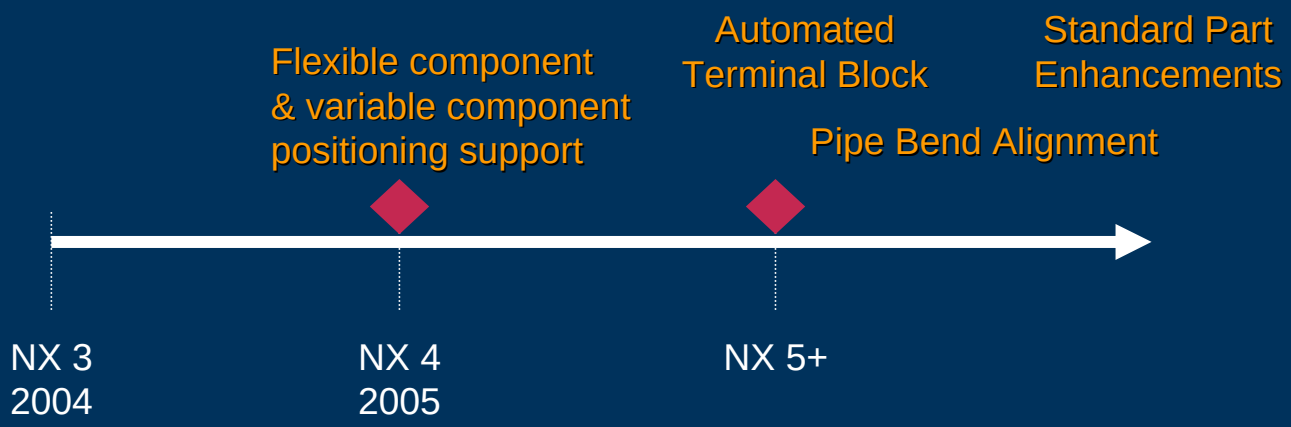
Goal Detail

Goal objective

- Provide tools to automate common routing operations
- Address specific customer requests for functionality enhancements

Why is this important to you

- Easy to use tool suite for creation and editing 3D data
- Facilitates re-use of existing 3D data
- Streamlined interfaces reduce overall design time



Goal 3 – Extend Routing Tool Suite

Goal Projects

ROUTING SYSTEMS

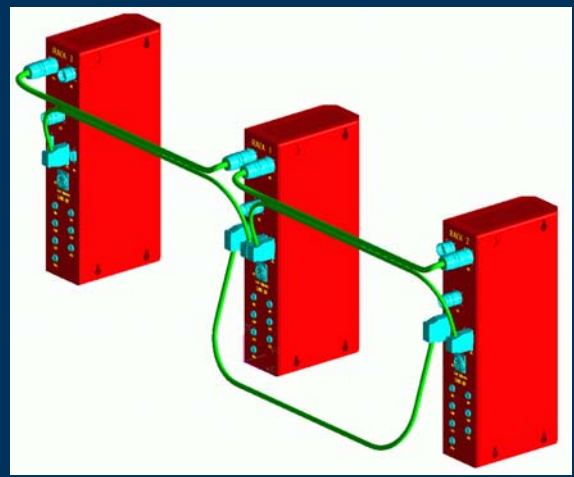
NX 4

Flexible routing assemblies (Phase 1)

- This project will make use of current Assemblies functionalities (Flexible Component / Variable Component Positioning) within the Routing application

Flexible Routing Assemblies

Same part number used many times with different orientations



Goal 4 – Knowledge-driven Routing

Goal Detail

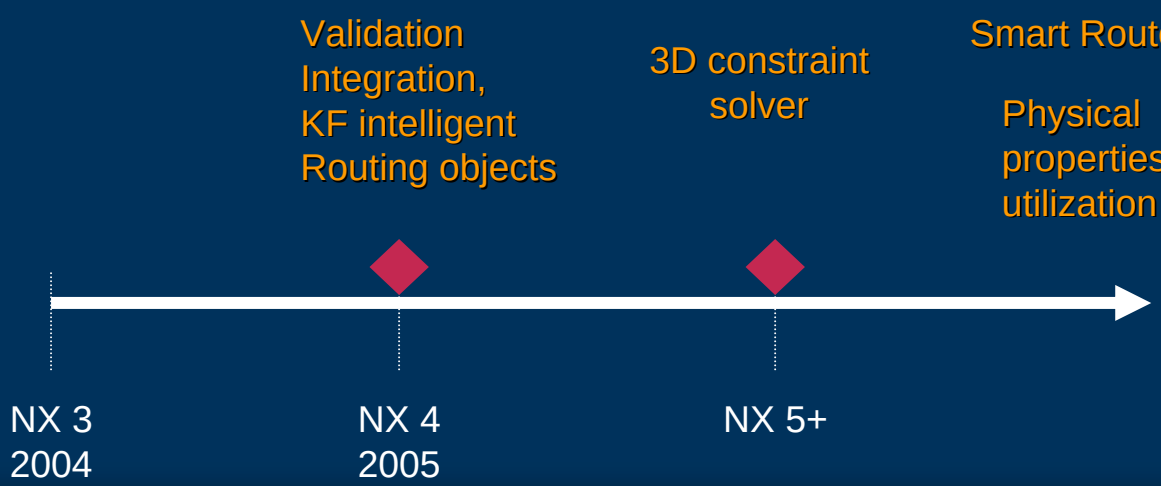
ROUTING SYSTEMS

Goal objective

- Provide rules based automation for part selection, path creation, path editing and validation in support of Electrical and Mechanical Systems integration.

Why is this important to you?

- Facilitates rule driven design creation and re-utilization
- Robust, common UI for all applications
- 70% time and effort savings over existing methods



Goal 4 – Knowledge-driven Routing

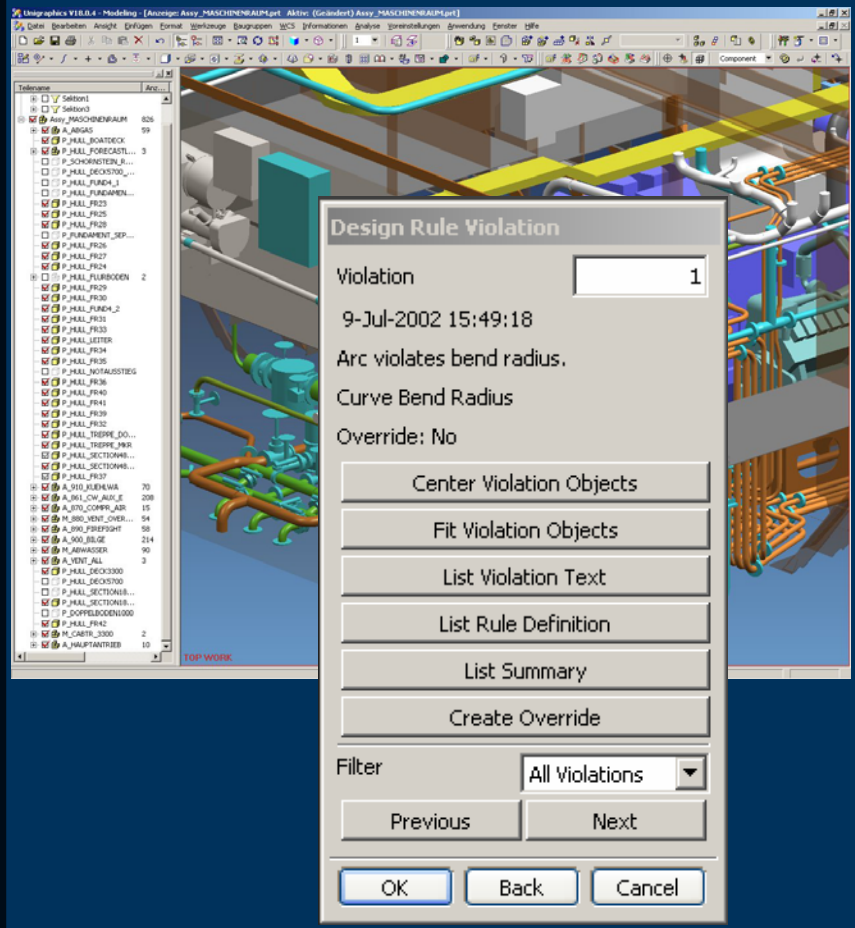
Goal Projects

ROUTING SYSTEMS

NX 4 Design rules integration

- Routing Systems design rules mechanism incorporation into the validation toolset (Check-mate)

Validation Integration



Goal 5 – Achieve First Time Quality

Goal Detail

ROUTING SYSTEMS

Goal objective

- Reduce Routing PR count and improve maintainability of core architecture.
- Improve Routing User Interface based on customer input.

Why is this important to you?

- First release quality product
- No PR's
- Increase ease of use and customer productivity

Rigorous code change request management

Utilization of Journaling for extensive test scenarios

Improved test plans

NX 4 Routing Systems Beta Testing Event

- 2 weeks…. 6June2005 (Mechanical) and 27June2005 (Electrical).
- A large amount of expertise was focused on NX4
  - 21 participants representing 12 companies
  - Exclusively St. Louis, MO (Routing Systems Development HQ)
- All the new functionality and enhancements were tested
- Existing customer processes and environments were tested
- Held in St. Louis to ensure testing environment is established with development team interaction each day.
- Our aim is to have this extensive interactive testing make NX Routing Systems a better product!!!!
- NX5 Testing dates: 25-SEPT2006 (Electrical) and 16-OCT2006 (Mechanical).

Routing Systems

NX 5 Project Summary (Subject to Change)

NX 5
Goal 1 - Journaling and automation
Journaling phase 2
Goal 2 - Mechatronic interfaces
Routing Physical without Functional
Logical-Physical consistancy anlysis
TcEng mechanical routing integration
Mechatronics interfaces / Zuken,CIM-Team
TcEng in-class specification enhancement
Goal 3 - Extend routing tool suite
Preferences Rationalization
Automated Terminal Block
Pipe Bend alignment
Standard part Enhancments
Goal 4 - Knowledge-driven automation
3D Constraint Solver Implementation

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NX 4 Routing Systems
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