UGS

Transforming the process of innovation

I-deas to NX Summary Session

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UGS Corporate Profile

Company

- Established Independence 2004
- Privately Held
- HQ – Plano, Texas
- Workforce of 6,300

Products

- Product Lifecycle Management Software & Services

Market Presence

- 46,000 Customers
- Nearly 4 Million Seats of Software

2004 Total Revenue $1.019B

Recent News!

Nissan Selects UGS' NX Software as New Standard for Its Next-generation Computer-Aided-Design (CAD) System to Design and Build New Vehicles

UGS win in multi-year-long contest bolsters company's momentum in CAD segment of Product Lifecycle Management (PLM) market; selection extends to Nissan affiliates

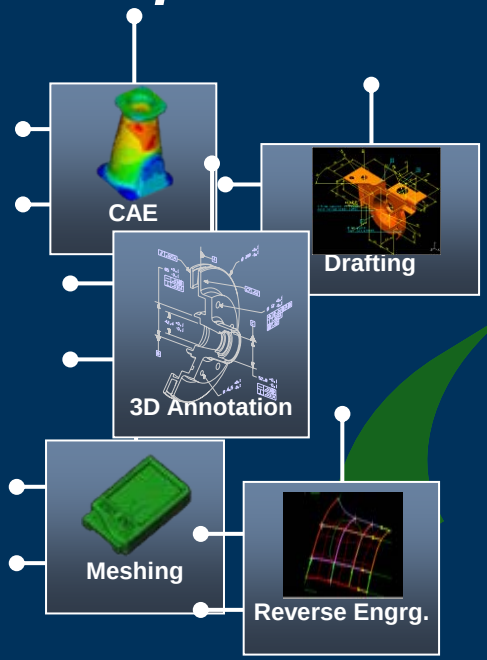
Selection of UGS to help Nissan achieve sustainable growth, profitability and return on investment through Nissan's mid-term business plan "Nissan Value-Up"; Nissan and UGS currently working to complete deployment plan

PLANO, Texas and TOKYO – UGS Corp., a leading global provider of product lifecycle management (PLM) software and services, today announced Nissan selected UGS to be the provider of the new global PLM system that Nissan and Nissan affiliates will deploy to design and build its next generation of vehicles.

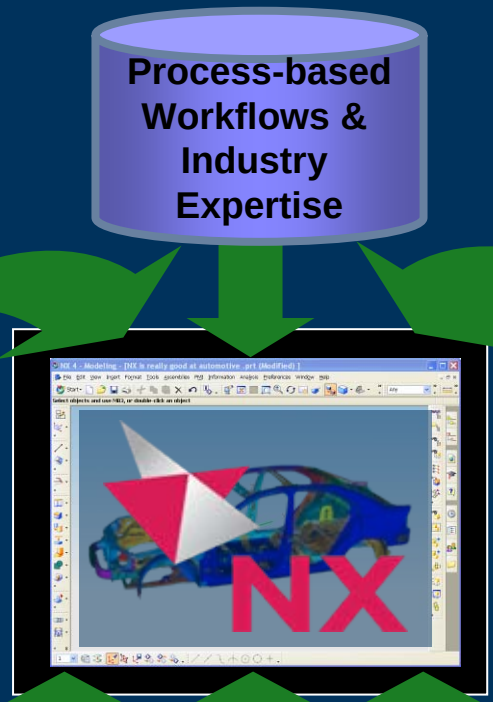
UGS expects the selection to represent its largest win in 2005. Nissan will use UGS' NX® CAD software to digitally design its vehicles on a global basis and UGS' Teamcenter® collaborative Product Development Management (cPDM) software to digitally manage product data and enable digital prototyping for all Nissan vehicles across the world. The company will deploy the software as part of a fully integrated, common R&D infrastructure for use inside Nissan.

NX Drivers

Superset Functionality to Improve Customer Workflows



Traditional I-deas Strengths



Traditional Unigraphics Strengths

Research & Development

Customer Requests

Advanced Functionality

I-deas to NX Migration – Objective

- To migrate customer data from the I-deas environment into the NX environment
  - Preserving customer investment and intellectual capital held within the data
  - Maintaining continuity in the workflows and processes

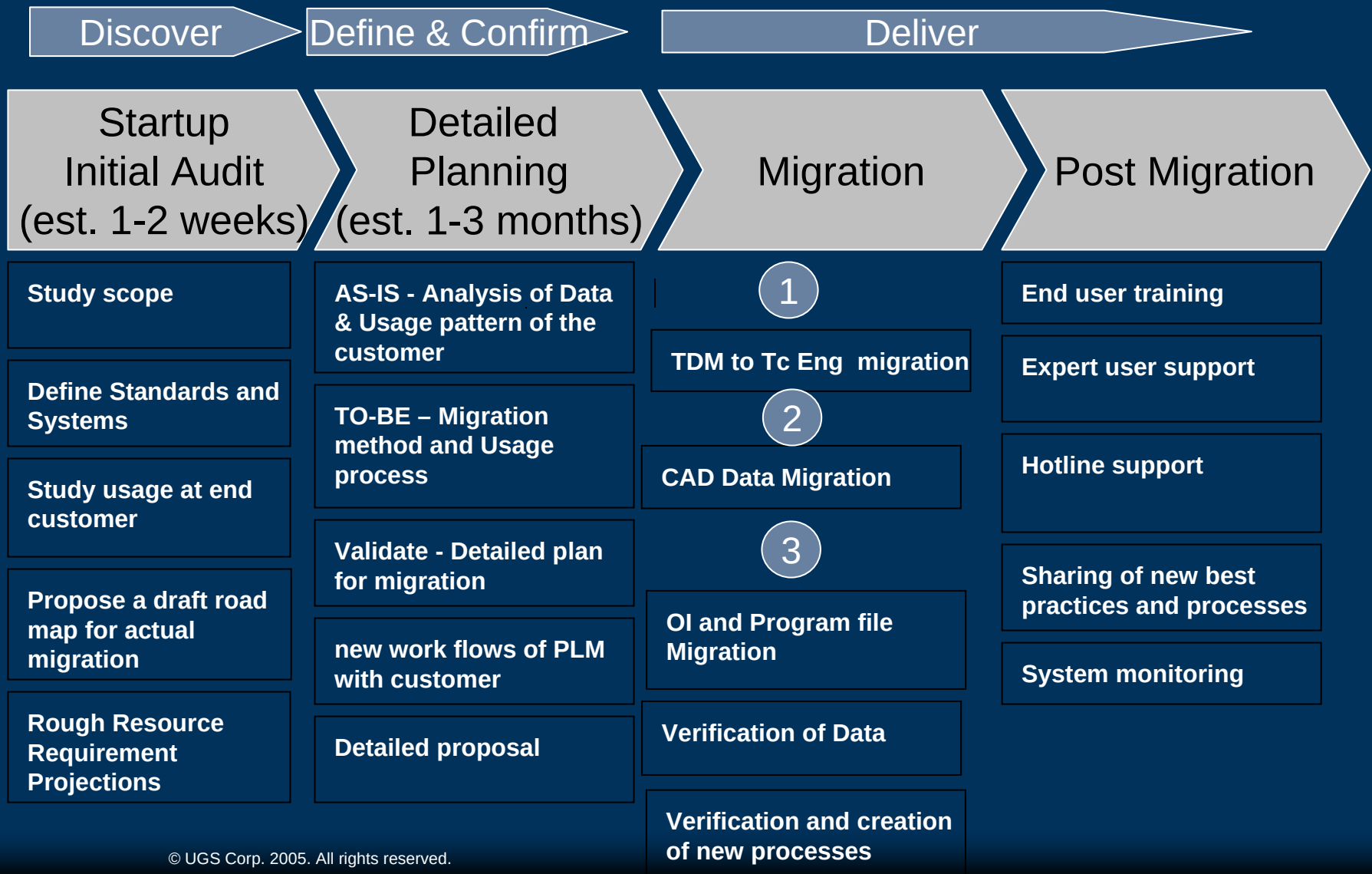
I-deas to NX Migration – Strategy

- Customer migration through a series of controlled data migration phases to ensure integrity and stability of the data throughout the process
  - Data analysis
    - Analyse the data to determine when to migrate
  - Data management migration
    - Migrate the I-deas data into Teamcenter
  - Content migration
    - Migrate the I-deas data to NX data within the context of Teamcenter
- All phases of the migration are to be supported by tools and services provided by UGS PLM Solutions and certified partners

New projects on NX and Teamcenter

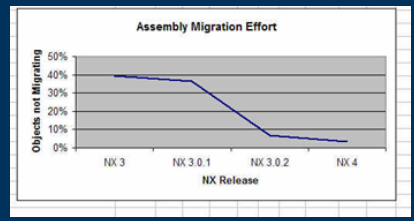
- Some customers, choose to start new projects or new users on NX using Teamcenter
- This happens in the case of no need for data migration from I-deas or limited interaction with groups/users or data that is still working in I-deas
- This is supported with standard UGS infrastructure and programs

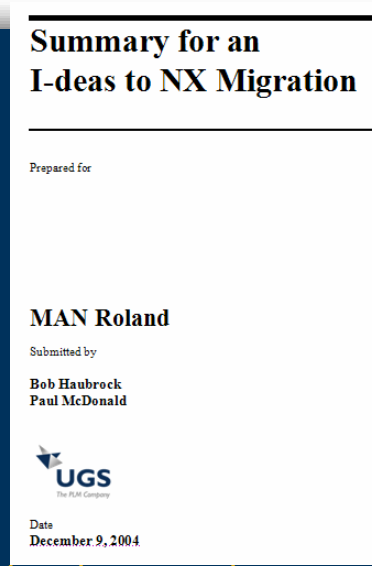
Migration Process Overview



Evolution of Excellence – Migration Audits

- One – Two Day on-site engagement with customer
- Performed at over 200 customers world-wide
- Analyze all TDM metadata for migration to Teamcenter
- Analyze all Parts, Drawings and Assemblies for features / entities / instances and give estimated migration success rates for NX 3 and NX 4
- Analyze all Customizations (Open I-deas and Program files)
- Give Migration Overview Presentation
- Demo Migration tools with customers data using Teamcenter Engineering and NX 4




Summary for an
I-deas to NX Migration

Prepared for

MAN Roland

Submitted by

Bob Haubrock
Paul McDonald

UGS

Date
December 9, 2004

We under went our "early adopter" I-deas to NX initial audit by UGS in August 2004. UGS came out to our company and spent two days with us, analyzing our CAD data and showing us the new products. My overall anxiety has pretty much disappeared now that I have seen the products as they relate to our CAD data. The products - both CAD NX and TDM to Teamcenter Engineering NX Manager I-deas look solid."
Susan Despotopulous
PLM World Technical Track Chair
Micro Motion Corporation

Driving Factors for Change

Early 2003

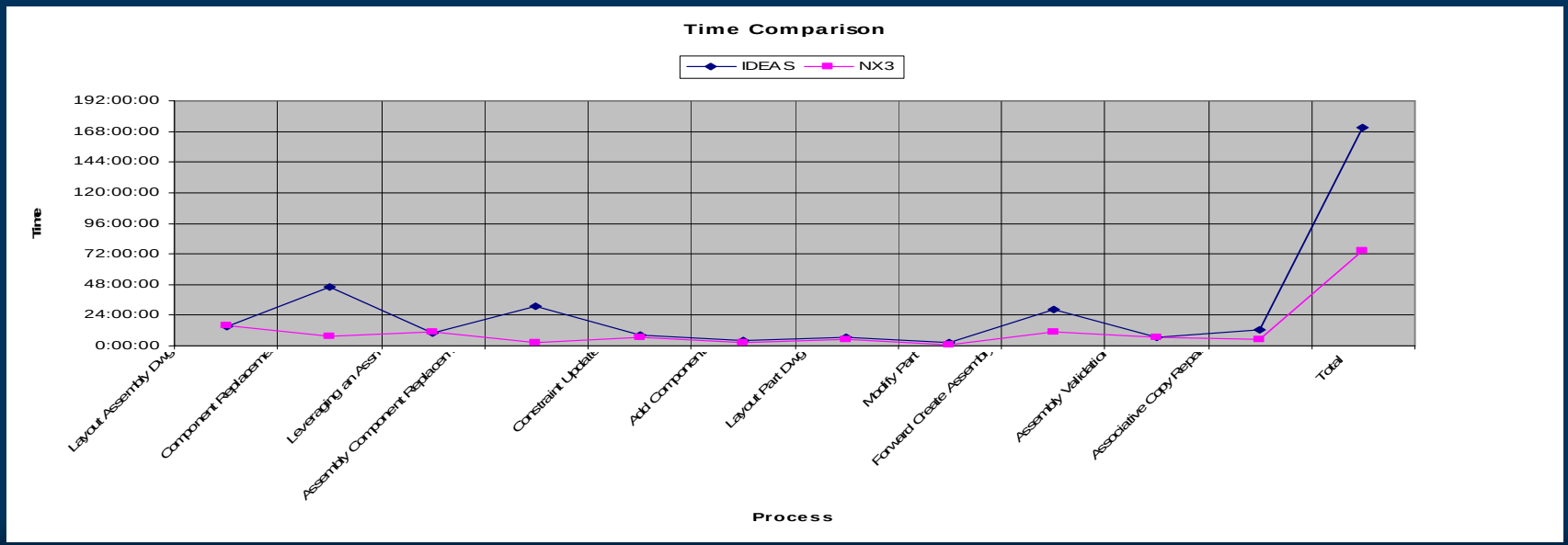
- Server & Desktop
- Multiple Interfaces

Today

- Significantly Increased Product Offering
  - Ability to leverage existing designs
  - Improved communication and knowledge capture between teams
- New Markets
- Increased Collaboration between Design Centers
  - More robust data sharing
- Deeper Engagement with Suppliers
  - Third party data
  - Improved access model

Document Value of Moving to NX over I-deas

- CAD workflow studies
  - Usually no more the 4 hours long each
  - Most companies define 3-5 workflows each (so not everything)
    - Existing I-deas workflows are documented and new NX workflows are developed and documented
    - Productivity measures are given for each workflow (time, clicks, mouse movement…)
    - Used as basis for documenting productivity advantages of future upgrades to NX after this baseline is created



Building a Business Case

Business Drivers

Why?

Technology Renewal
- I-DEAS is at end of life.

Cost Avoidance

Vendors are selling competing products to dissatisfied us
- currently >*Z1* non-Standard licenses at Seagate (~ $*XXX* K)
- Extremely high cost to re-integrate unmanaged deployments

Why Now?

NX Productivity
- CAD Productivity
- Common Parts
- Ease of use

Inter-site Data Sharing
- Eliminate manual transfers
- Improved quality through collaboration

Enterprise Processes
- Supplier Collaboration
- Purchasing
- Program Management
- …

Quantified	Unquantified
•Labor Baseline *Y1* FTE ~ $*X1* M /yr •CAD Workflow Benefit $*X2* M/yr → *Y2* FTE	•Commercial Parts •Reduced Training
•DMLink Transfer Eliminations $*X3* M/yr → *Y3* FTE	•Quality Impact due to lack of sharing •Duplicate Parts
•Identified Process Improvements $*X4* M/yr * Not used in FTE calculations	•Unmanaged Supplier Interchange •Obsolete inventory •PDM Integration (Quality Impact)

I-DEAS to NX: One Company's Journey
5/3/05

Teamcenter – First step of Migration remove TDM

- Teamcenter Engineering
  - Preferred solution for integration with NX with manufacturing features
- MI Admin – Tool used to clean/correct data in TDM and multiple TDM's prior to migration to Teamcenter
  - Latest enhancements support modifications useful for migration to Teamcenter Engineering and fixing I-deas 8 Drawing migration data

	A	B	C	D	E	F	G	H	I	J	K
1	#USERNAME = jsmith										
2	#DATE = Fri May 16 10:43:02 2003										
3	#										
4	#Error Type	Error Group Number	Item Name	Part Number	Item Type Name	Version Number	Rev	New Value	Action	Project Name	Installation Master ID
5	ITEM_NAME_TOO_LONG	89	Teradyne (LC 8x10 w/guide on right)		LIB PART	1		Teradyne (LC 8x10)		Standard	7
6	ITEM_NAME_TOO_LONG	89	Teradyne (LC 8x10 w/guide on right)		LIB PART	1		Teradyne (LC 8x10)		Standard	6
7	INVALID_IMPORT_EXPORT_LOC	121	10-0057-01	10-0057-01	LIB PART	1			IE_LOCK_OFF	Standard	7
8	INVALID_IMPORT_EXPORT_LOC	121	10-0057-01	10-0057-01	LIB PART	1			IE_LOCK_ON	Standard	6
9	MULTIPLE_PART_NUMBERS	129	62-8791-01	REFDWG_OC192	LIB DRAFTING	8	A0			OIBU.GSR	6
10	MULTIPLE_PART_NUMBERS	129	62-8791-01	REFDWG_OC192	LIB DRAFTING	9				OIBU.GSR	6
11	MULTIPLE_PART_NUMBERS	129	62-M192C-01	REFDWG_MERLIN	LIB DRAWING	10		REFDWG_OC192	PROPAGATE	OIBU.GSR	6
12	MULTIPLE_MIGRATED_DRAWIN	504	33-1729-01		LIB ASC DRAV	3				mattmohr	6
13	MULTIPLE_MIGRATED_DRAWIN	504	33-1729-01		LIB DRAWING	4				mattmohr	6
14	BAD_MIGRATED_DRAWING_RE	646	28-MERLIN192C	PCBFAB_MERLIN1	LIB DRAWING	3	02		FIX_RELATION	OIBU.GSR	6
15	BAD_MIGRATED_DRAWING_RE	678	62-9234-01	ASY_YB_AC_GEF	LIB DRAWING	2	02		FIX_RELATION	OIBU.GSR	6
16	DUPLICATE_PART_NUMBER	715	29-0985-01	29-0985-01	LIB PART	3				Standard	7
17	DUPLICATE_PART_NUMBER	715	old part	29-0985-01	LIB PART	3		old part	PROPAGATE	Standard	7

Xerox TDM Analysis

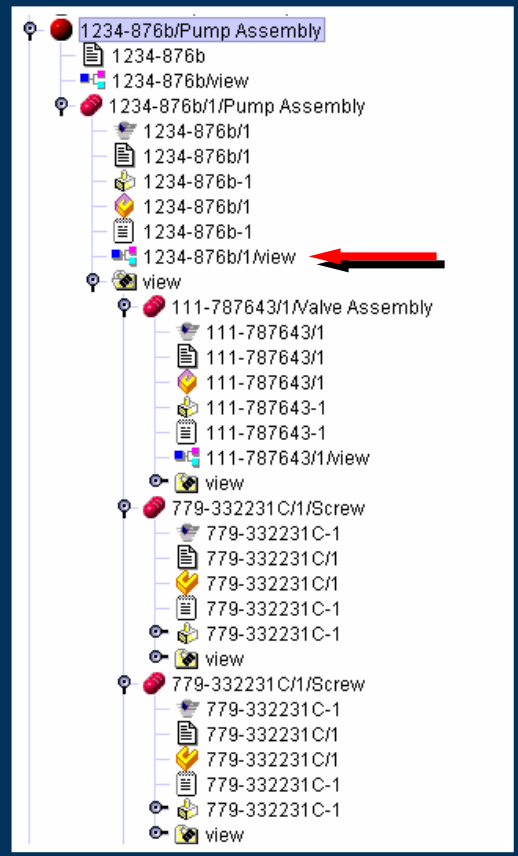
- 92 Duplicate version numbers
- 10 missing item names
- 805 multiple item names
- 4086 missing part numbers
- 1117 multiple part numbers
- 912 invalid import export lock status
- 113 migrated drawing duplicate version numbers
- 200 invalid copy of migrated drawings
- 29 multiple migrated drawings
- 21580 duplicate part numbers
- 80 Bad migrated drawing relationships
- 29 invalid migrated drawing attributes
- 31701 duplicate item name
- 16 invalid characters in item name
- 12246 item names too long
- 164 part names too long

Second Step – Data Migration Begins with NX 3

- **Increased Functional Breadth and Depth by Leveraging Two Existing Highly Productive Products**
  - Knowledge Driven, Open, Standards Based
- **Key I-deas Functionality being Added to NX**
  - Assembly Configurations, Drawings Containing Multiple Parts, Variational Sweep
- **Benefit from Existing Unigraphics NX Strengths**
  - Parasolids, Part Navigator, Form Features
- **Combined R&D Engine Drives Further New Enhancements**
- **Revolutionary Tools to Preserve Data**
  - Part Features, Associated Drawings, Assembly Constraints, Content Migration
- **Customization Mapped to Next Generation NX Functionality**
- **End User Training, Help and Intuitive New User Interface**
- **Predictable Migration Process**
  - Audit tools, Service Standards, Certified Partners

CMM – Engineering Components

- Team Center Engineering
- CMM Engineering
- Migrates
- I-deas parts, assemblies, and drawings



Content Migration Manager (CMM)

Migration Modes

- Interactive UI
- Command line/bulk tools

Select data for migration

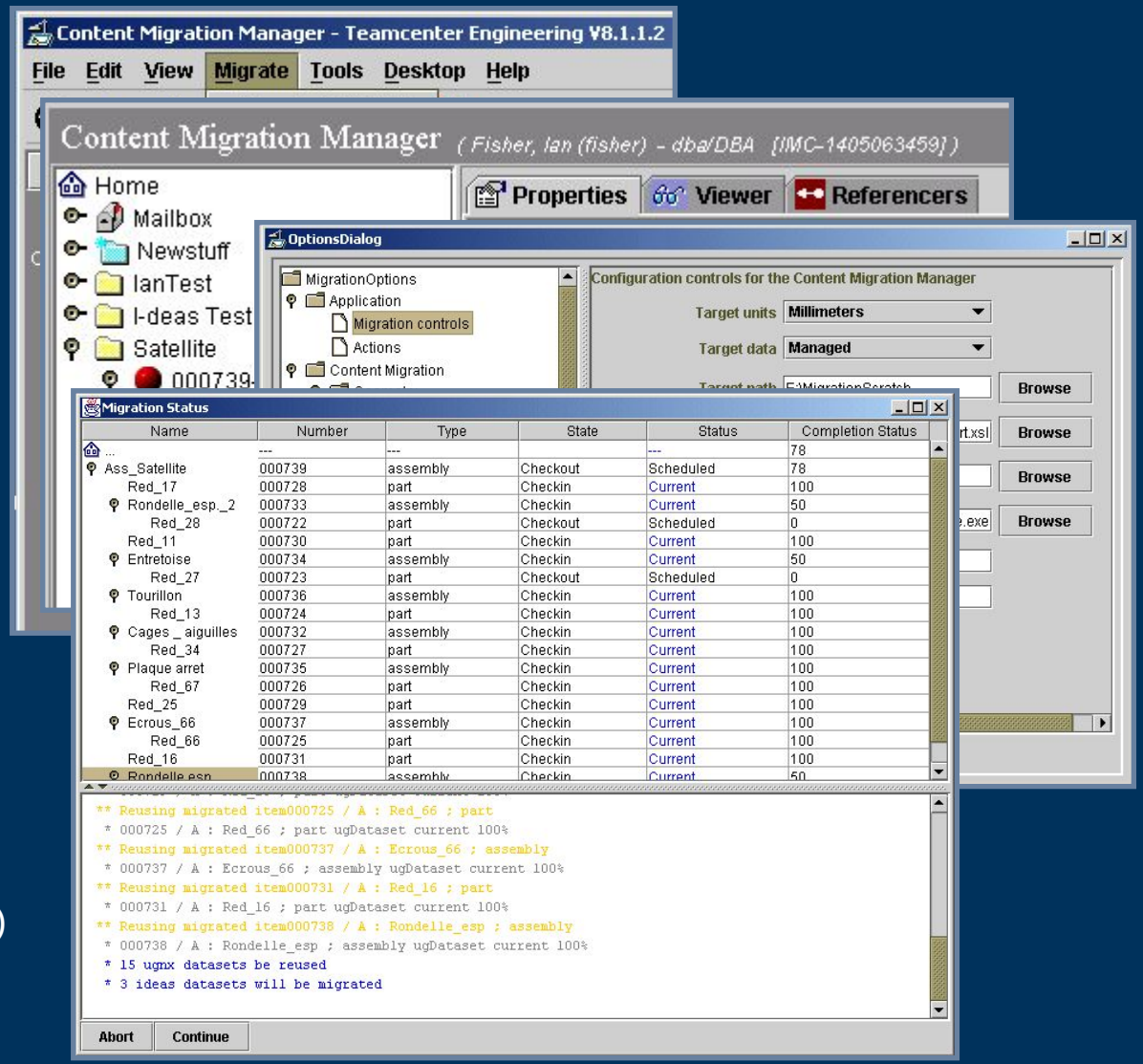
- User may select items, item/revisions or folders
- CMM resolves dependencies

Configure Migration

- User may configure the migration operation
- Style of migration (e.g., Brep vs features)
- Success criteria
- Level of checking

Migration Reporting

- Pre-migration report
- In-migration status (dashboard)
- Post-migration summaries
- Item migration reports (persistent)

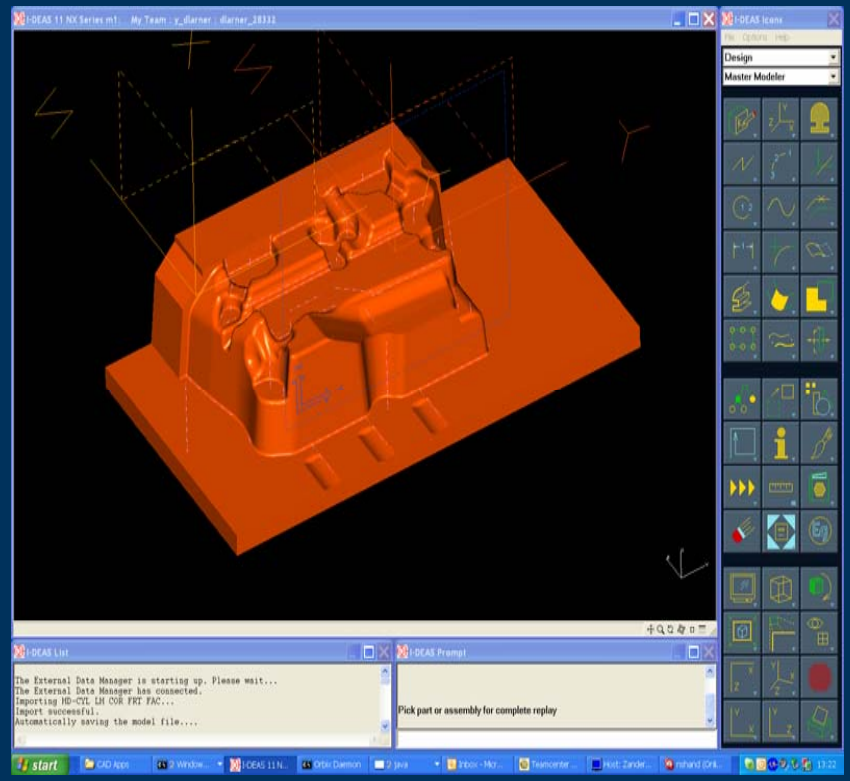


Part Migration Options

- JT file with precise data
  - Full support for design in context
  - Facet and precise measure, cross section and interference
  - Full support of PMI between JT parts and native geometry
- Boundary Representation
  - Direct Modeling Extensions (DMX) in NX will add support of modification of some geometry
  - I-deas Coincident Point Tolerance accuracy guaranteed
- Features
  - Full and partial featured models
  - I-deas Coincident Point Tolerance accuracy guaranteed
  - Partial featured models still have all parameters of all futures stored with model
    - Aids in recreation of fully featured model
    - Aids in information to modify design intent for many modifications

Migration Part Test

- Automotive Migration Part
  - Front Core Cylinder Head
  - I-deas 10 M1 Part
  - Part Version 22
  - 191 Major and Minor History Steps
- Migration Results Released Code
  - NX 3.0.1 and I-deas 11 M2
  - 97% Feature Pass Rate
  - 6 Advanced Fillet Issues
    - Rollover and stop short
  - Manual repair to get same part as I-deas took 20 minutes
- Rebuilding all geometry from scratch in I-deas took 20 hours



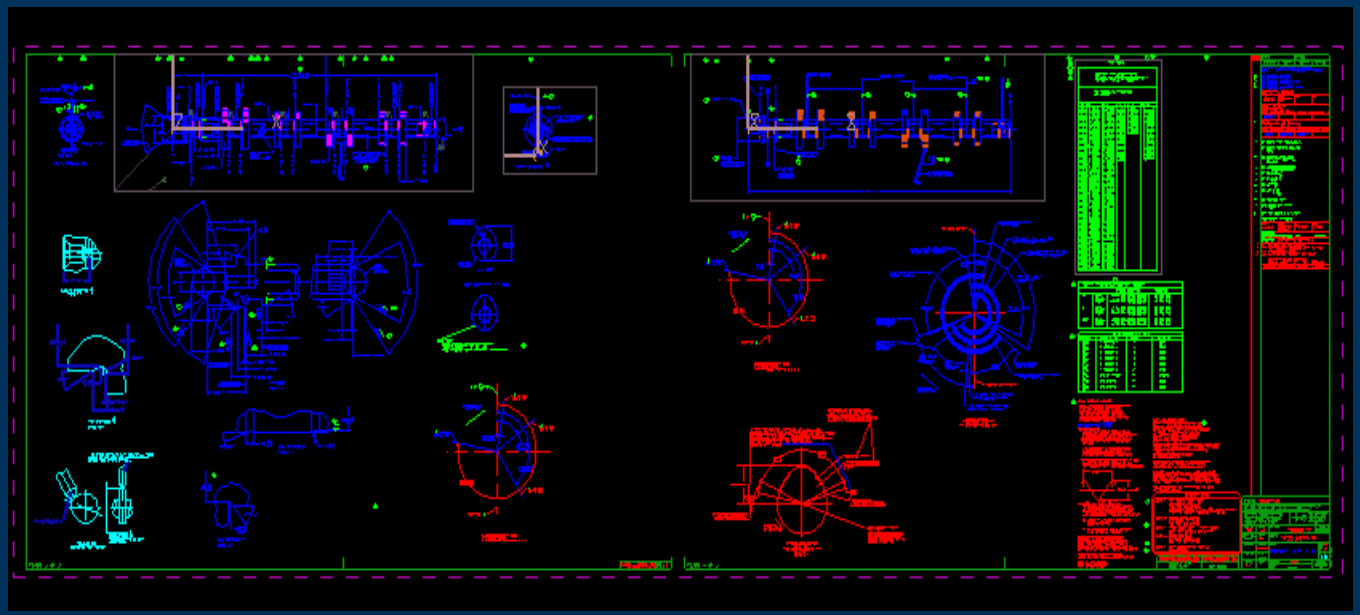
Part Migration Value 60 to 1

Xerox Audit Results

- Analyzed 215,871 parts with over 3,885,678 features
  - Most features not prismatic
  - Migration in NX 4.1 estimated > 97%
  - Fillet used in 44% of parts
  - Draft used in over 15,000 parts
- Analyzed 107,093 assemblies with average size of 56 items
  - One super large assembly had 5145 instances
- Open I-deas of 1221 calls, with 152 different methods

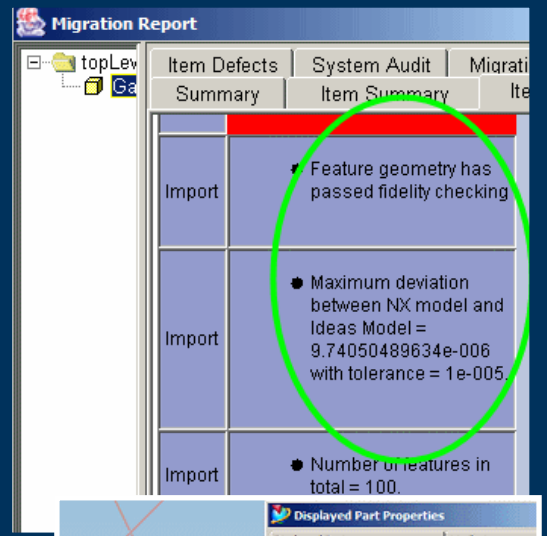
Drawing Migration Results

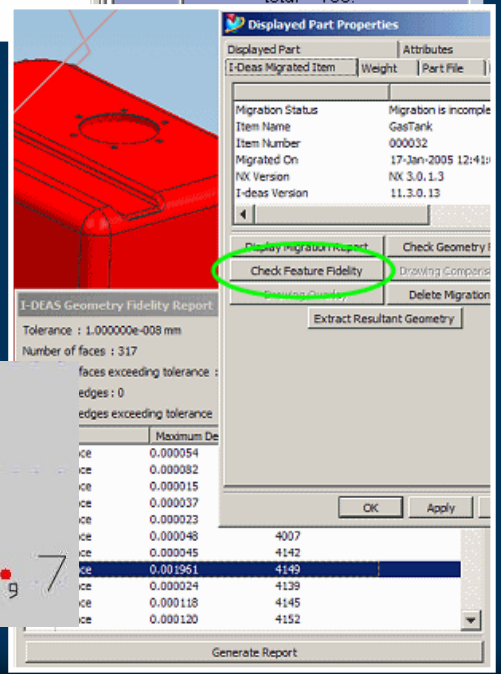
- Example of Drawing migration test at Canon
- Drawing migration certified for fidelity and associativity
- Migration pass rate for this set of drawings in NX 4.0.0 is 92% or 193,572 entities migrated successfully
- Most conservative estimate of value of migration of these drawing compared to going to any other CAD system is 75 to 1

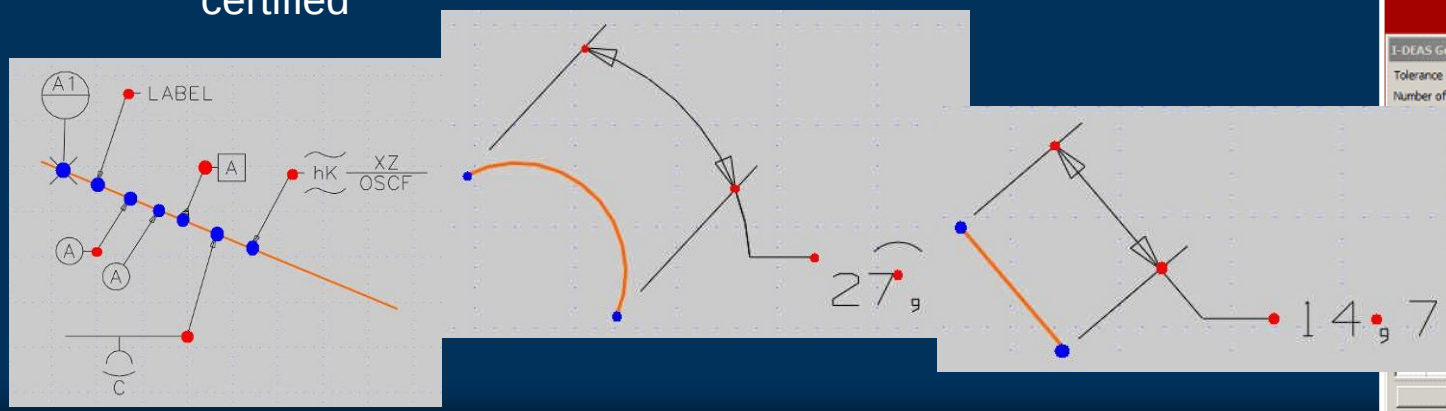


Fidelity Certification of All Migrated Data

- Parts
  - Fidelity Measured at I-deas Coincident Point Tolerance (PCT) of 1e-5m
    - “/up f” Developed Originally as Joint Project with Ford
  - All Faces are Compared with the Original I-deas Faces
- Drawings
  - Pixel, vector and unique “key point” drawing entity certification tool
  - All drawing entities are certified with associativity
- Assemblies
  - Location, configurations, constraints and ACF relations all certified

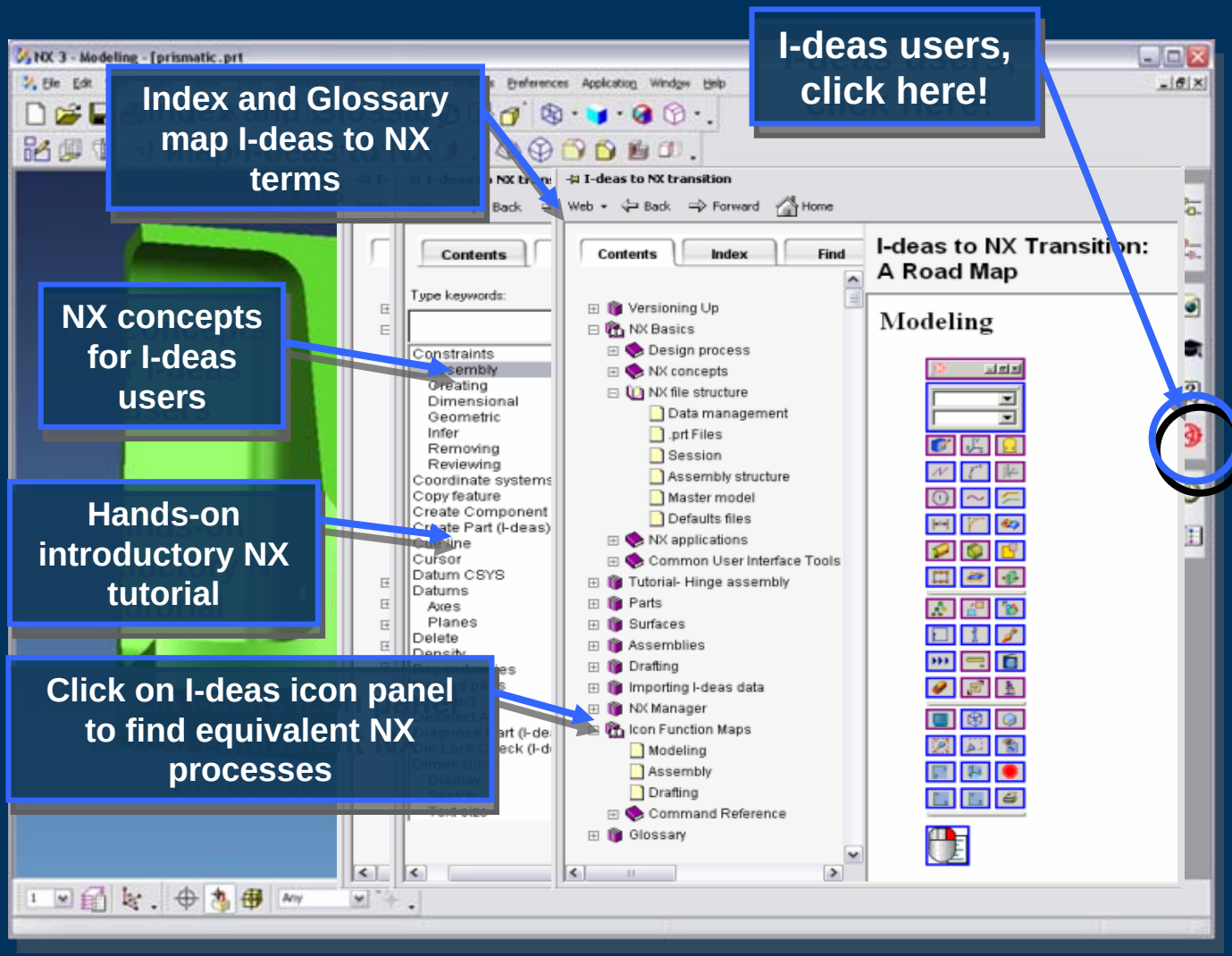






Making I-deas Users Productive in NX

- I-deas On-line Job Aid
- I-deas Context Sensitive Help
- I-deas Function Mapping to NX 4 Commands
- NX and Teamcenter training classes and tutorials specifically for I-deas users
- Ability to Customize for Site Specific Use
- 100's of next generation functions from I-deas



Product Design Engineering

Geometry Capabilities

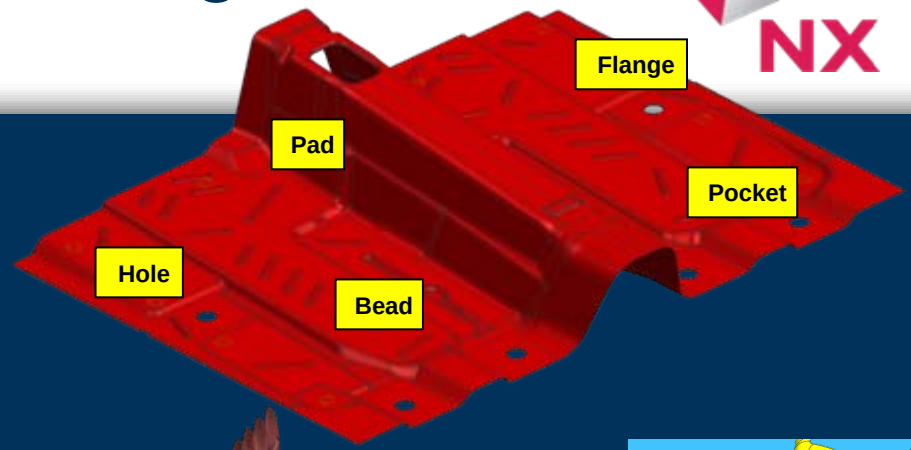
NX

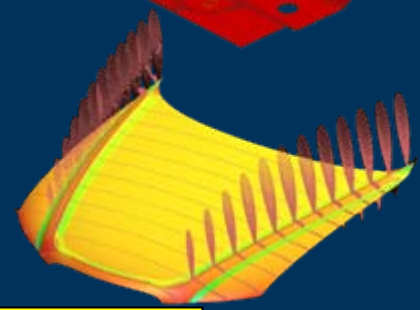
Value to Xerox

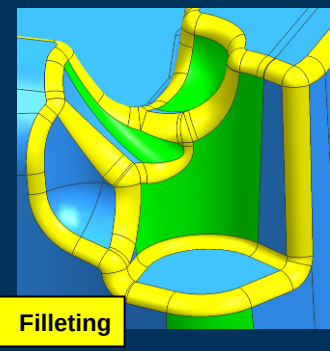
- Faster and more design iterations
  - Increase time designing, reduce time working around technology
- I-deas skills preserved
- Ability to work parametrically on non-parametric, imported data (Catia V4)

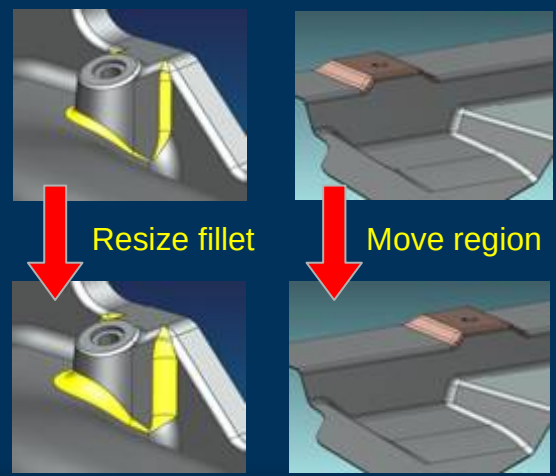
Technology Enablers (Examples)

- Filleting and draft
- Leading Geometry Engine
- Integrated Modeling Environment; model with solids, surfaces, JT and mesh in a single environment
- Parametrics on demand (DMX)
- Specialized automotive modeling functions
- I-deas features implemented and improved in NX
- …









DMX Functions

- Offset face
- Move region
- Replace face
- Add draft
- Resize fillet

Product Design and Engineering

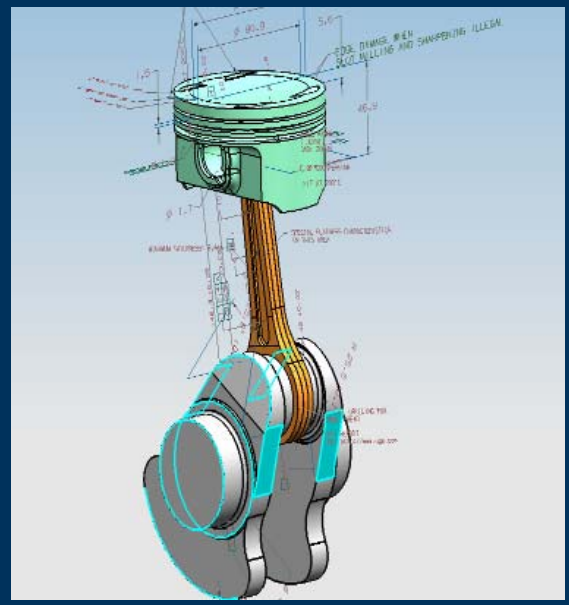
Design Documentation

Value to Xerox

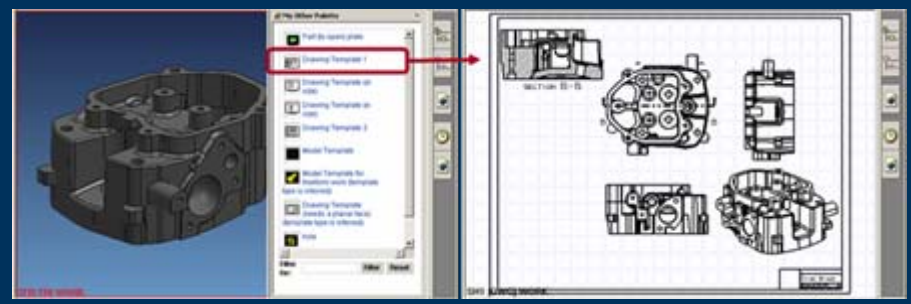
- Reduce dependency on drawings through the application of product and manufacturing information (PMI)
- Automated Drafting

Technology Enablers (Examples)

- Highly Productive User Interface
- PMI Application
  - ASME Y14.41
  - ISO standard 16792
- Drawing Templates
- PMI is associatively inherited onto a drawing



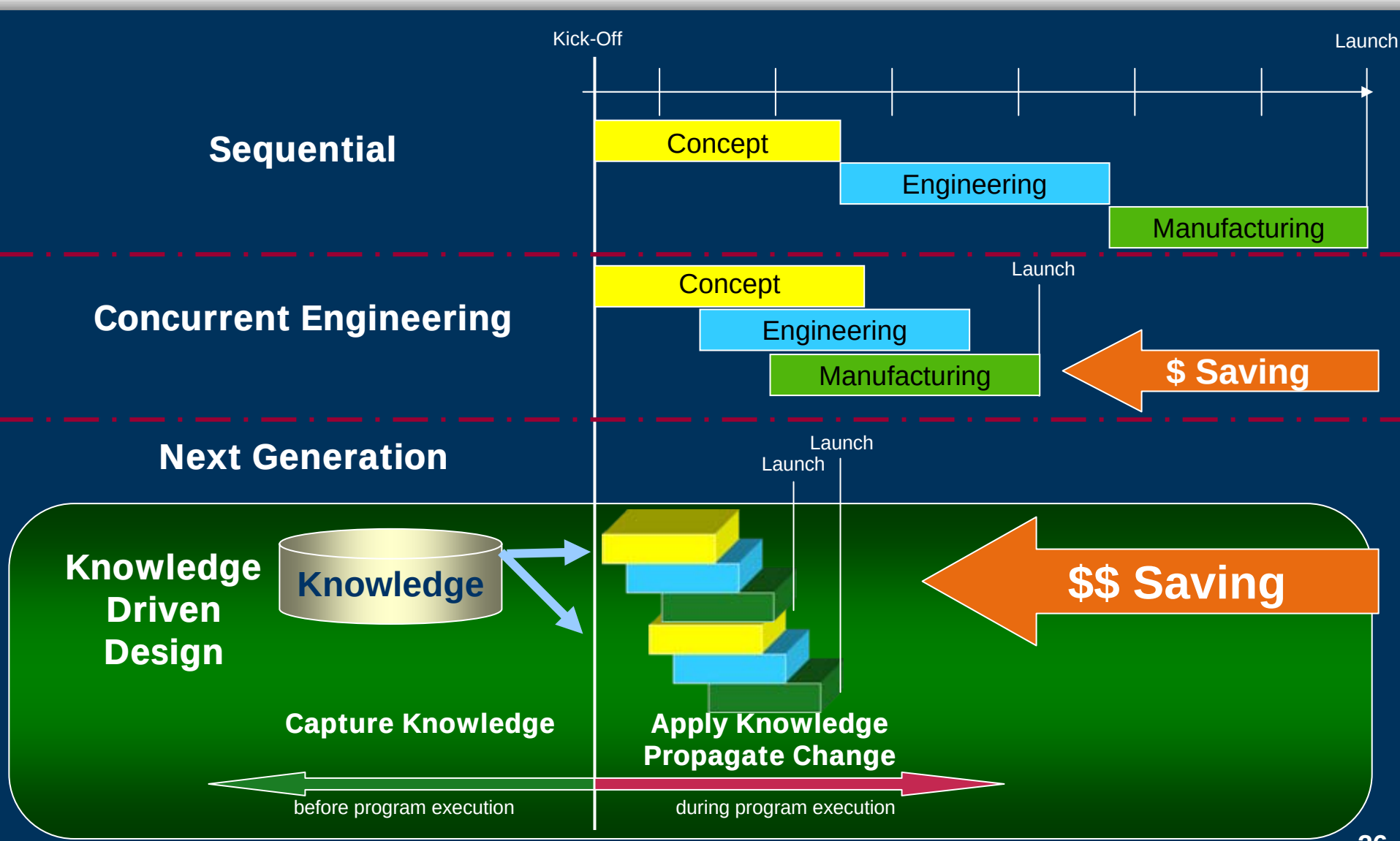
PMI Authoring in NX



Drawing Templates increase documentation productivity

Knowledge Driven Design

Strategy and Direction



Product Design and Engineering

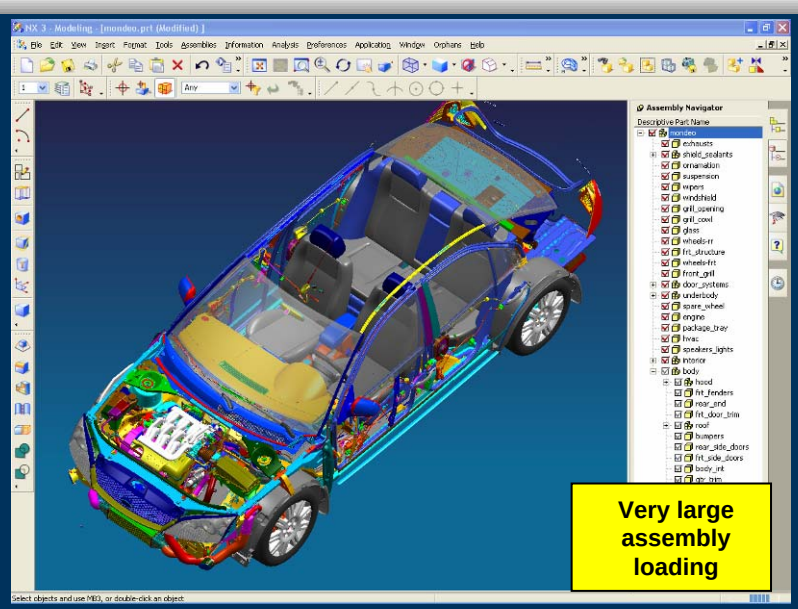
Digital Mock Up On Demand

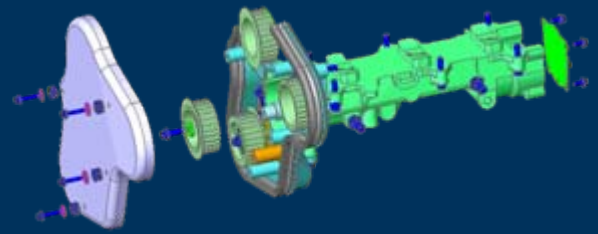
Value to Xerox

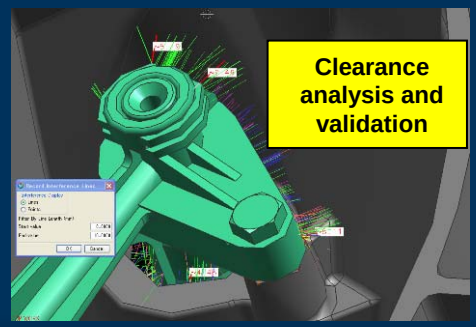
- Ability to create, review, modify and validate very large virtual Multi-CAD designs
- Increase time designing, reduce time working around technology

Technology Enablers

- Direct access to and interoperability with JT parts and assemblies enables seamless multi-CAD environment
- Integrated JT representations
- Extensive component filtering capabilities
- Solid and facet based clearance analysis
- Sectioning and measurement tools
- Sequencing
- Direct support of migrated I-deas configurations and assembly constraints







Business Value

- Requirement
  - Provide a CAD data mgmt solution meeting or exceeding the process capabilities of I-deas TDM
  - Provide process, templates, products, and tools supporting I-deas to NX transition of customer data and processes
- Business Value
  - Teamcenter delivers a CAD Manager solution for management of CAD context plus extended functionality for Engineering process, Multi-CAD, and RDV
  - UGS delivers transition processes, patterns, templates, best practices, and tools to streamline the transition of TDM data into Teamcenter

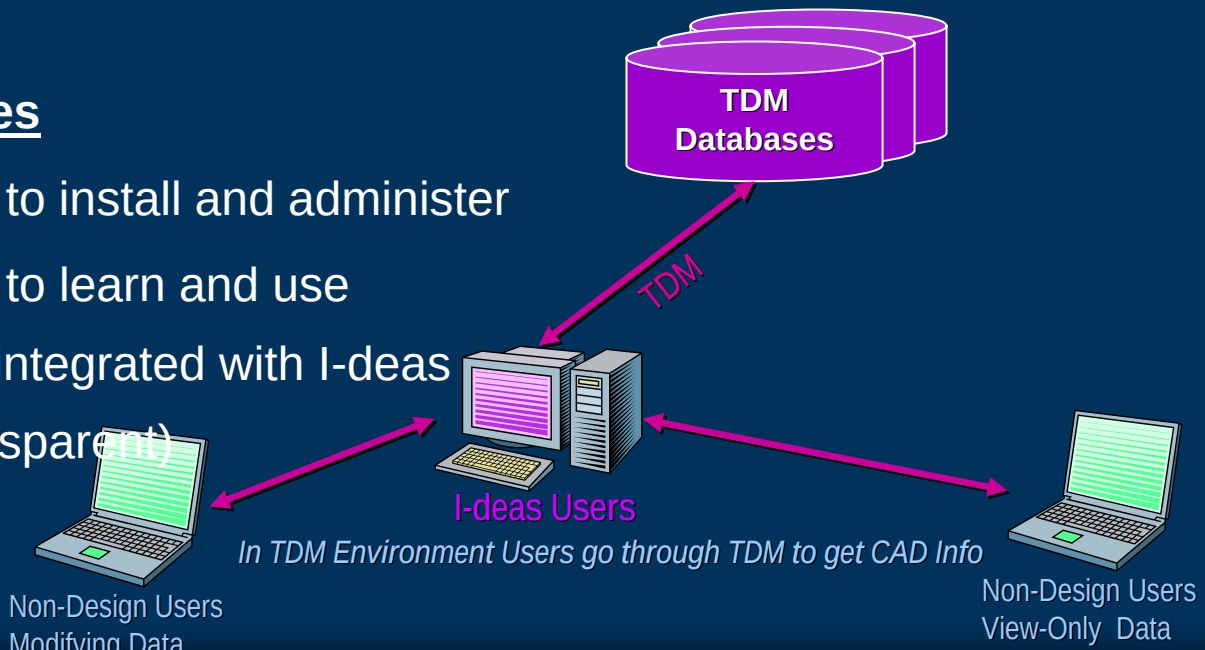
Typical TDM Environment

Capabilities

- Single site / team data management for I-deas
- Basic site-site transfers (package files)
- Entry level process capabilities:
  - Team member role assignments
  - Basic item states

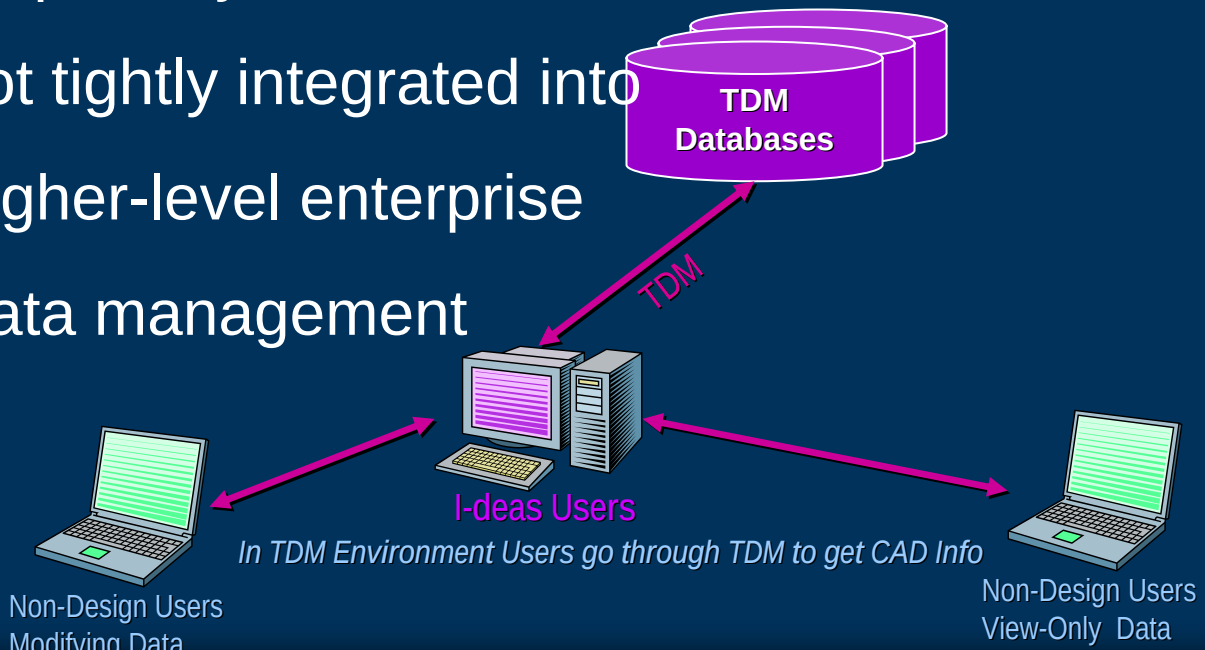
Attributes

- Easy to install and administer
- Easy to learn and use
- Well integrated with I-deas (transparent)

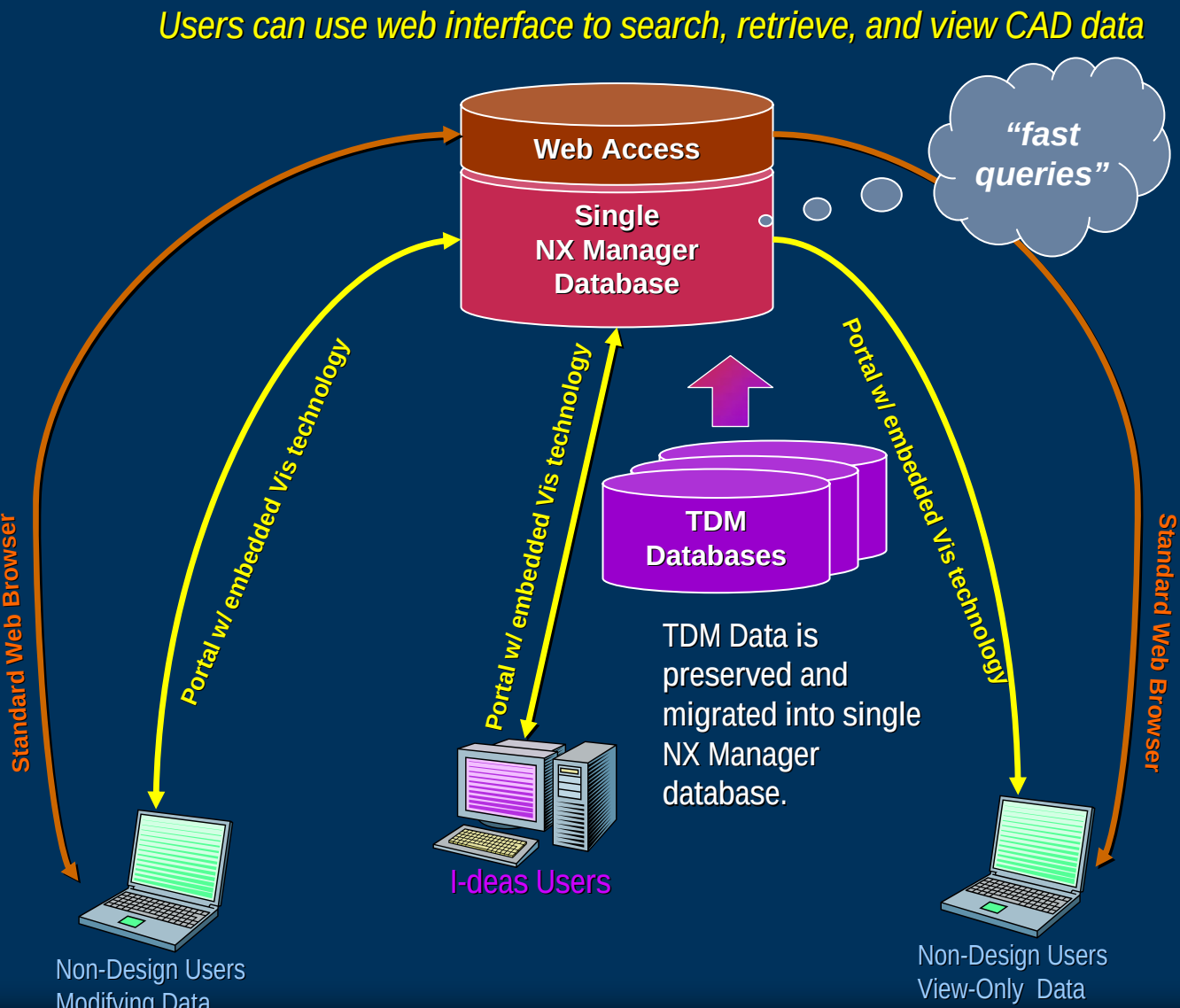


Typical TDM Environment

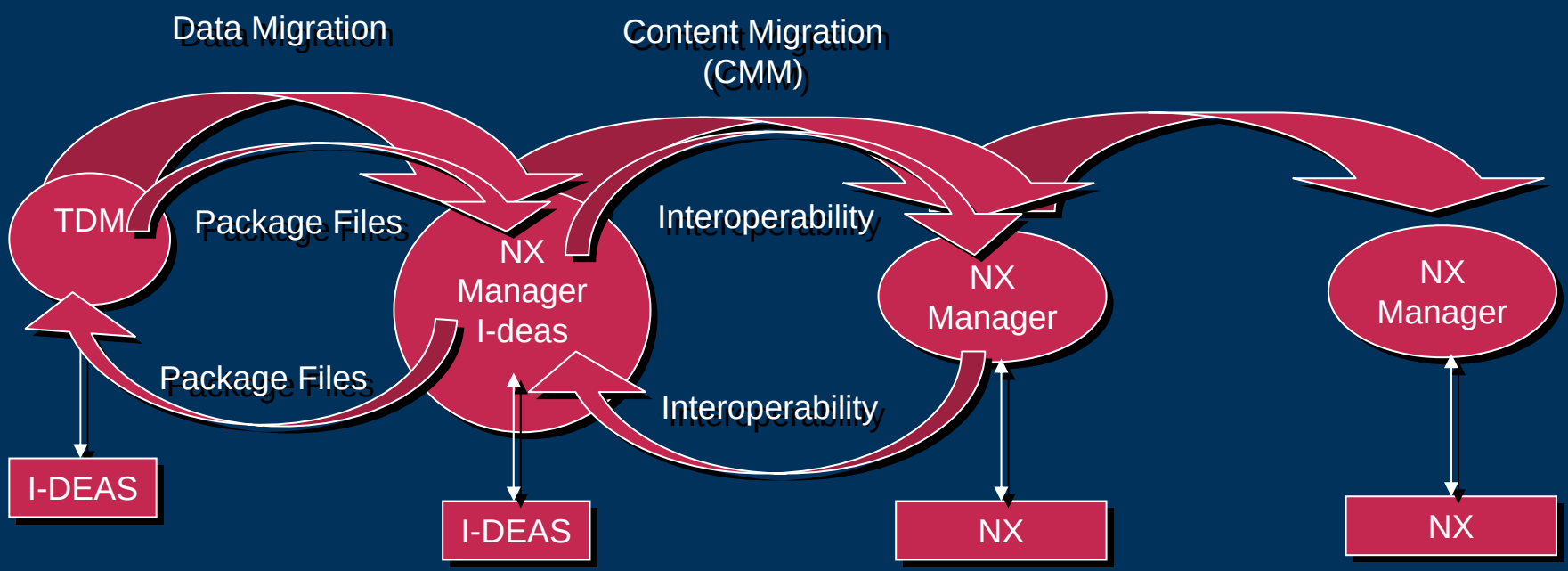
- Designed for I-deas data and users only
- Limited multi-site sharing
  - LAN based, not WAN or web based
- Practical limits on numbers of users
- Proprietary database
- Not tightly integrated into higher-level enterprise data management



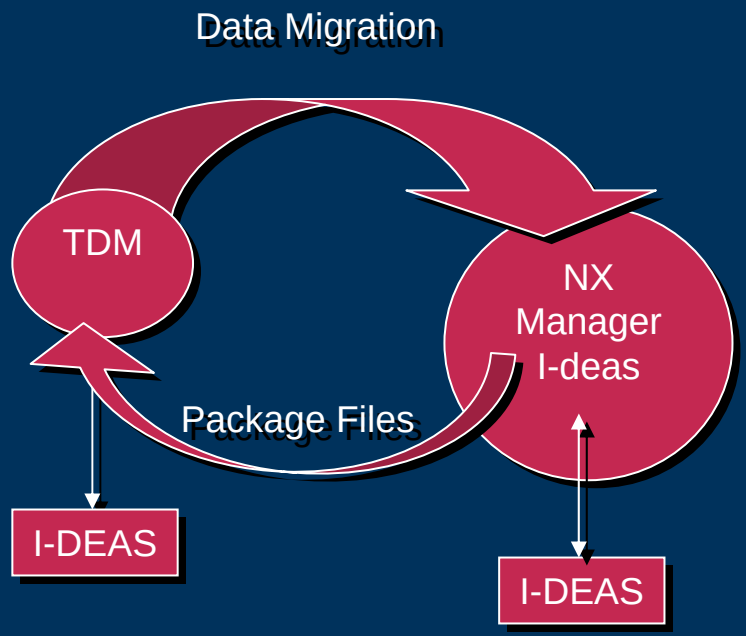
Upgrade TDM to NX Manager



I-DEAS to NX



Migration Options



- Mass migration is not recommended for larger companies (>30 users)
- Step migration is supported but need strategy to minimize need for data to be sent back to TDM as it will be manual and use package files
- Second step migration from TDM to NX Manager is supported with the migration tools

Biggest Benefits of moving to NXMI for I-deas users on TDM

- Performance of check-in and check-out is much better for over 3 users
- Use of JT data for visulization in PDM as well as check out to I-deas
  - Many customers use JT data to check out 80% of the data they used to check out fully featured parts
- Full security, scalability of a PDM system
- Multi-site
- Path of data migration to NX

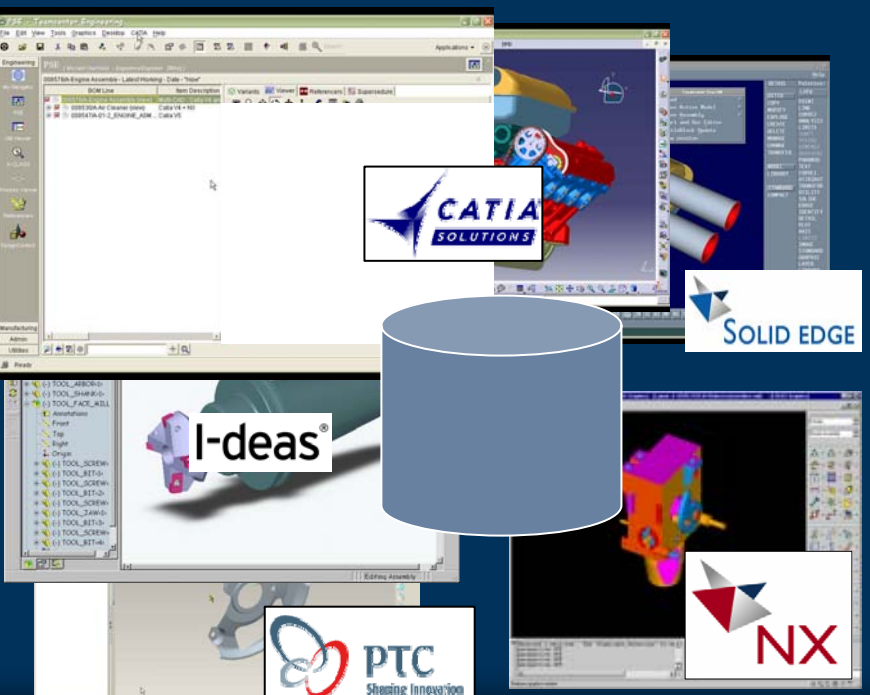
Design Management
Multi-CAD Data Management

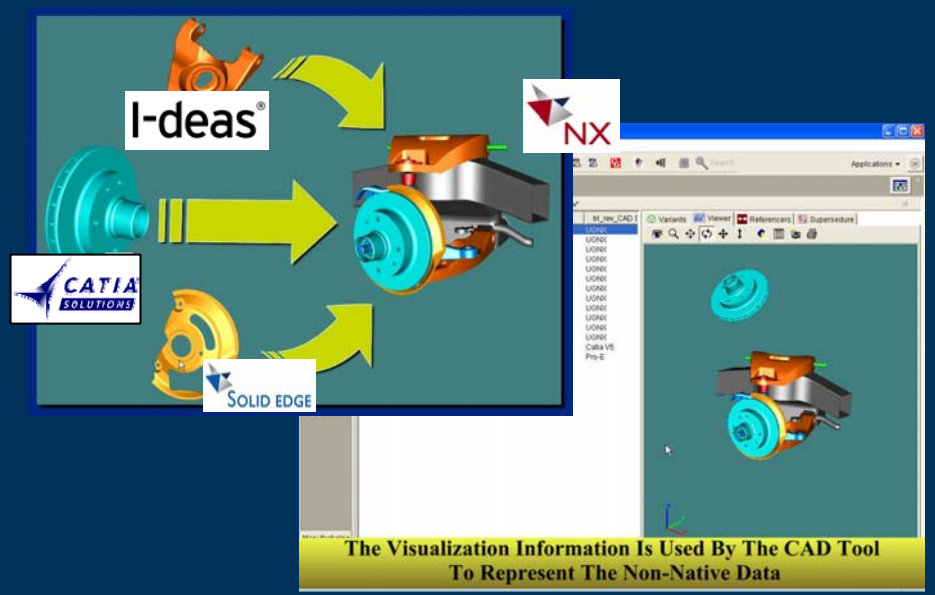
Design Management

- Common platform/database for
  - Vaulting, check-in/out
- CAD management
  - Multi-CAD vaulting
  - Multi-Site Collaboration
- Visualization for consumers

Engineering Process Management

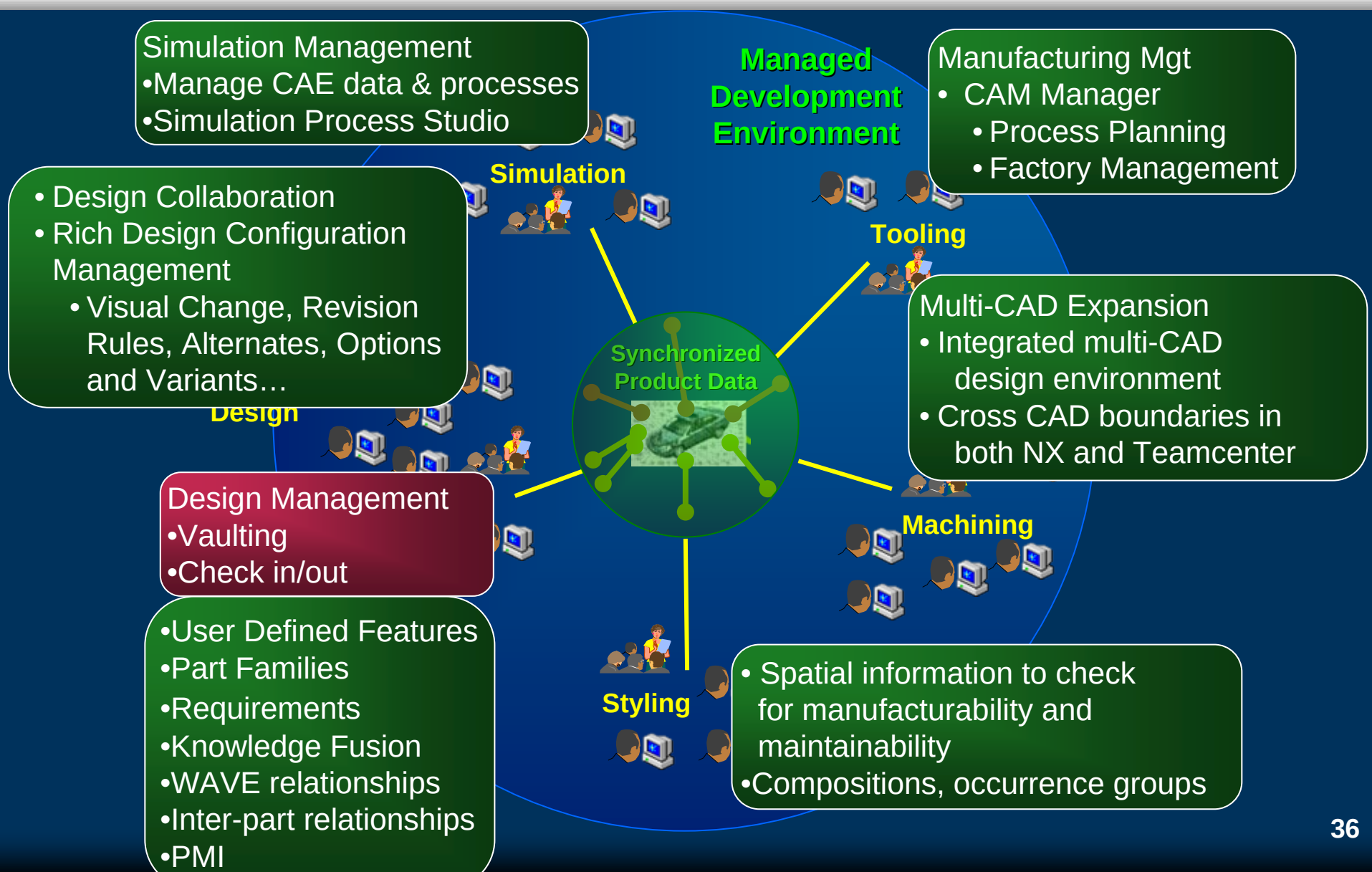
- Common Engineering Processes for
  - Workflow and lifecycle management
- Heterogeneous Multi-CAD Product Structure Management
- Visualization for all and opportunity for Digital Mockup and Validation





NX Managed Development Environment

NX and Teamcenter are scalable and functionally rich



Summary

- Robust migration from I-deas to NX native models
  - E.g. model history, sketches, reference geometry, associative drawings, assembly constraints, PMI, …
  - Zero CAD license cost for Xerox and suppliers with I-deas
  - Data migration tools provided at no cost
  - Migration training offered by UGS
- Teamcenter Engineering offers a managed environment for work in process, managed migration process data
- NX offers best in class capabilities for product development
  - E.g. Design / visualization, CAD creation, Large Assemblies, harness design, Knowledge Based Engineering, Simulation

Moving to NX is Low Risk, Low Cost, High Value

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