PDMS to S3D Plant Migration

Webinar on April 6th, 2016

Session 1: Europe / Asia Pacific starts at 3pm Singapore
Session 2: Americas / Europe starts at 11pm Singapore
Your presenters

• Raghu Krishnamoorthy - Service Manager

• Patrick Mackinlay - Principal Consultant

• Marc Albani - Marketing Director
House keeping

• This webinar will be recorded.

• All lines are muted, in order to avoid background noise.

• We will make the recording available in our follow up.

• The webinar will take around 40 minutes before we start the Q&A session.

• To ask a question, please use the panel on your screen.

• Please respond to the quick polls during the webinar.

• Please give us your feedback on the exit survey.
Vision of TecSurge

We will be the leader in Managed Services by delivering complex engineering software applications that are ready for use and enable our clients to maximize Return On Investment.

In other words:

“TecSurge is passionate about making the use of complex engineering software easy.”

Mr. Anton Schreibmueller, President & CEO of TecSurge.
Our business

- Three business lines
  - TecSurge OnDemand
    - sharpen your business focus
  - TecSurge Academy
    - boost your knowledge
  - TecSurge Service
    - expand your capability
Agenda

• Drivers for Migration
• Migration options
• The TecSurge Approach
• Deliverables
• Case studies
• Getting Started
• Q&A
The challenge

- There are several reasons why you may need to migrate a model from PDMS to Smart 3D:
  - Source model (e.g. FEED) supplied by a 3rd party in PDMS format
  - Execution in PDMS with handover requirement in S3D
  - Change of platform and retention of access to legacy data
Why migrate?

• Depending upon the specific scenario, there may be several options considered:
  – Do nothing, and continue to operate two technologies with limited integration
  – Reference the existing plant model (several methods exist)
  – Undertake a plant model migration project

• Successful plant model migration delivers the following:
  – Increased efficiency via full integration of 3rd party design information
  – Successful project delivery by meeting client requirements
  – Reduction of costs associated with legacy technology
When should I migrate?

• Plant model migration is not a fully automated process:
  – Requires planning and strict quality control
  – Significant numbers of resources, both specialist and designer
  – Timeframes measured in weeks or months, not days

• In principle, our advice is to begin planning your migration as soon as possible:
  – Reduce risks of meeting external milestones
  – Understand the time and cost involved
  – Avoid time and cost by migrating sooner
  – Ensure access to project personnel
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Migration overview

• Plant model migration involves four main stages of activity:

  1. Migrate specifications and catalogues
  2. Migrate the model data
  3. Checking and corrections
  4. Migrate deliverables

• TecSurge has the expertise and experience to address all four phases:

  – Industry knowledge across projects, standards and technologies
  – Expertise with the most popular plant design systems
  – Migration automation tools target Smart 3D from intermediate format (currently supporting PDS and PDMS)
  – Automated checking tools compare source and destination data
  – Experience to manage the manual retouching work for models and drawings
Migration options

- There are three major options available:
  - Manual re-modelling (in-house)
  - Commercial tools (in-house)
  - Subcontracting to service provider
Manual re-modelling is labour intensive

• Advantages
  – Produces “native” result
  – Leverages existing skills

• Disadvantages
  – Un-productive use of resources
  – Requires large numbers of personnel
  – Significant amount of manual checking
  – Increased license and infrastructure costs
  – Resource constraints limit scheduling flexibility

• Summary: it’s hard work, and requires significant project coordination and resources
Commercial tools are complex to use

• Advantages
  – May reduce manpower and time

• Disadvantages
  – Steep learning curve
  – Investment for a one-off requirement
  – Tools may not produce “native” results
  – Significant manual checking
  – Tools demand perfect input data
  – Do not address all aspects of migration (e.g. specifications, symbols and drawing migration)
  – Additional license costs

• Summary: it’s technically complex, may not produce the results needed, and still requires manual effort
Our approach is a packaged solution

• Advantages
  – Fixed price and duration
  – Up-front agreement on quality
  – Limited customer resource commitment
  – Consulting advice available at every step
  – Professionally project managed
  – No hidden or additional costs
  – No learning curve or wasted investment in skills or tools

• Summary: as a specialist, TecSurge uses automation and experience to deliver the results you need as a packaged solution with transparent pricing, schedule and quality
Migration options summary

• On the surface, plant model migration looks simple. Without experience, it’s easy to overlook the hidden dangers:
  – Uncontrolled budget and time
  – Difficulties measuring/monitoring quality
  – Infrastructure and licensing costs
  – Specification and catalogue migration
  – Drawing and deliverable migration
  – Hierarchy and attribute migration
  – Unproductive use of resources
  – High investment for one-off scenario

• TecSurge takes care of all of these issues, offering you a solution with a fixed price, schedule and agreed quality
Quick Poll
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TecSurge Approach

- Analyse individual customer and project requirements
- Extract data from PDMS
- Prepare migration environment
- Automated migration into S3D
- Manual touch up
- Automated quality check
- Generation of drawings and reports
- Handover of deliverables
Reference Data

- Automated conversion of piping specifications and catalogs
  - Identical piping specifications are required
  - Automated testing procedure ensures placement of all components

- Required custom symbols and hanger and supports catalogs will be developed or used

- Creation of specification and catalog data for
  - Structural sections
  - Fireproofing
  - Electrical and Instrument Cabletray
Piping

- Requires identical piping specifications and dimensional data
- Piping is automatically remodelled line by line from start to finish
- Line list attributes are carried along
- Hangers and supports are auto-placed at exact location
- Manual tidy up supported by a Quality Control tool ensures that the remodelled piping is identical
Equipment, nozzle tags & attributes

- Equipment modelled in PDMS migrated to S3D
- PDMS equipment primitives migrated as equivalent S3D shape
- Nozzles migrated as intelligent S3D nozzles associated with the equivalent objects
- Aspects maintained between both systems
- Equipment and nozzle tags and properties assigned based on the PDMS value
Structure

- Full migration including material information
  - Linear and curved members
  - Fireproofing
  - Frame connection
  - Slab and opening
- Quality checking and touch up

PDMS Model

Automated migrated model in S3D without manual tidy-up
Handrails, stairs & ladders

- In PDMS handrails, stairs & ladders are modelled using the Access, Stairs and Ladders (ASL) module
  - Equivalent objects can be automatically migrated
  - Other objects may require manual remodeling in S3D
Electrical and Instrumentation

- Cable trays are automatically remodeled
- Quality check and manual touch up ensures that the modelled cable tray is identical
- Cable tray attributes will be carried along
- E&I equipment is migrated by automation tool
Hierarchy and attributes

- Migrated model will be moved into the proper System hierarchy
- PDMS UDA attribute values transferred to equivalent attributes in S3D
- Naming rule assigned
- To-do entries cleared
Drawings

• Isometric drawing
  – Extracted directly from S3D after model migration and touch up
  – Comparing extracted drawing with source drawings
  – Maintain same isometric sheet split point
  – Update title, line list and revision information
  – Optionally embed source drawing in S3D

• Orthographic drawing
  – Intelligent drawing extraction
  – Drawing volume migrated to S3D
  – Update title, line list and revision information
  – Optionally embed source drawing in S3D
Extracting intelligent drawings

- Content is identical but data representation may vary
Quality Assurance

• TecSurge ensures quality targets are met by using several techniques throughout the migration:
  – Comparison of Topology & Component sequence
  – To-do entries
  – Open end
  – Comparison of Bill of Material

• TecSurge developed in-house automation to support automated comparison of PDMS and S3D models, and semi-automated rectification of any discrepancies identified
Deliverables

Standard project deliverables for TecSurge are

• S3D archive containing:
  – Piping specifications and catalogue
  – Remodelled and quality checked piping, pipe supports, equipment, structure, civil and cable trays
  – Piping isometric drawings
  – General arrangement drawings
  – Report Template
  – To-do list

• Optional MDR to production environment

• Interim backups or review models delivered at agreed milestones prior to completion in support of customer review

• Standard project progress reports and issue registers
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Case Study 1: Productivity

- Client handover requirement: **SmartPlant 3D 2011 R1 on Oracle Database**

<table>
<thead>
<tr>
<th>Item</th>
<th>Project</th>
</tr>
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<tbody>
<tr>
<td>Piping material specifications</td>
<td>60</td>
</tr>
<tr>
<td>Process equipment</td>
<td>1,900+</td>
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<tr>
<td>Electrical &amp; instrumentation</td>
<td>100+ layouts</td>
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<tr>
<td>Piping isometrics</td>
<td>24,000+</td>
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<tr>
<td>Arrangement drawings</td>
<td>500+</td>
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<tr>
<td>Time</td>
<td>3.5 months</td>
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</table>

- Result: Client has requested additional plant model migration services
Case Study 2: Flexibility

- Client handover requirement: **SmartPlant 3D 2011 R1 on Oracle Database**

<table>
<thead>
<tr>
<th>Item</th>
<th>Pilot</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piping isometrics</td>
<td>~80</td>
<td>12,000+</td>
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<tr>
<td>Process equipment</td>
<td>12</td>
<td>290+</td>
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<tr>
<td>Structures</td>
<td>1 module</td>
<td>8 modules</td>
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<tr>
<td>Electrical &amp; instrumentation</td>
<td>50 trays</td>
<td>1,500+ trays</td>
</tr>
<tr>
<td>Arrangement drawings</td>
<td>10</td>
<td>900+</td>
</tr>
</tbody>
</table>

- Result: Client has requested TecSurge to bid on full migration scope
Expertise

Our experts support any and all technology platforms based on your needs, in order to provide objective and trusted advice.

- Any combination of plant design systems
- Independent and cross platform expertise
- Objectively offer the best services and solutions
- Expertise in commercial software
TecSurge Service Benefits

Scalable
• Delivery organization
• Efficiency via automation
• Innovation and creativity

Adaptable
• Team of experts
• Broad expertise
• Experience

Simple
• We speak your language and understand your issues
• Standardised and tailored
• Application and vendor independent
TecSurge Service Delivers

Professional Project Management
• Every project has a project manager who is in charge of customer communication and reporting.
• The project manager monitors the project scope, budget and schedule.

Quality Management
• The professional services team at TecSurge is always looking for opportunities to improve quality and reduce cost.
• TecSurge has a long history of building and utilising automation technologies, which allows us to deliver the highest quality results within tight schedules.

Fast and Efficient
• Our intimate familiarity and understanding of the technology ensures we are able to identify and apply the best available methods, ensuring we can efficiently scale our capability to meet your toughest challenges.
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Getting started

1. **Contact us** for a questionnaire and to discuss your needs.

2. Complete the process.

3. Start enjoying the benefits of TecSurge PDMS to S3D Data Migration!
Thank You

• We are looking forward to making your experience with TecSurge PDMS to S3D Plant Migration an easy one.

• Please complete the exit survey.

• For business inquiries, please contact Rengan Jayakrishnan, Global Sales Manager at rengan.jayakrishnan@tecsurge.com.

• Connect with us on LinkedIn.

• For more information, please visit www.tecsurge.com

• You will receive a follow up email including the recording of this webinar.