WW OPS-07 Extending the Operational Boundaries of MES with Model-Driven Concepts

Tom Troy  Director, Operations & Execution Portfolio

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Extending the Operational Boundaries of MES
The Goal of this Session...

✓ Review the vision around Model-Driven Operations Management and some of the key elements that support this vision.

✓ Discuss how Model-Driven concepts can be used to extend MES solution boundaries to deliver broader, more comprehensive work task management.

✓ Review plans for adopting Model-Driven concepts for the MES portfolio.
The Vision Around Model-Driven Concepts
Model-Driven Operations Mgt.
The Foundation for Process Excellence...

Framework for Modeling and Sustaining World-Class Processes...
Model-Driven Operations Mgt.  
What’s the Vision? 

It’s about “Application Modernization”...

It’s expanding our operational and collaboration boundaries to coordinate people and applications across the organization in an intelligent, effective and governed manner.
Model-Driven Operations Mgt.
What’s the Vision?

It’s about “Application Modernization”...

It’s delivering a model-driven application framework that enables customers to adapt and extend “application models” to meet specific business needs and objectives.

Example Application Models

**Configuration:**
- Add new machine
- Add new line
- Change KPIs
- Add new product
- Etc.

**Runtime:**
- Record downtime event
- Edit a downtime event
- Start/complete orders
- Record scrap
- Etc.
Model-Driven Operations Mgt.
What’s the Vision?

It’s about “Application Modernization”...

It’s embracing the convergence that’s occurring today around desktop and mobile computing – must be device neutral (e.g. desktop PCs, tablets, phones, etc.)
Model-Driven Operations Mgt.
Key Takeaways...

Model-Driven Concepts Are...

- About delivering broader work process management that coordinates disparate people and applications into intelligent, effective, governed processes.

- Changing the way we develop and deliver “application content” for our Production & Performance applications.

- Changing the way our end-users configure and extend our applications to meet specific business needs.

- Embracing the “computing convergence” by supporting multiple computing platforms (e.g. desktop, tablet, phone).
Key Elements of Model-Driven: Design, Configuration & Runtime
Model-Driven Operations Mgt.
The “Composite Application Container”...

Enterprise Console will provide the composite application container that hosts Invensys and 3rd party “content” in support of:

- design tasks,
- configuration activities,
- operator/end-user activities, and
- reporting & analytics
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The Design Experience...

One Single Place to...

- Manage/adapt composite application business rules
- Manage/adapt composite application UIs
- Manage extensible elements for UIs (e.g. custom UI elements) and business rules (e.g. custom activities)
- Manage application connections (e.g. URLs, middleware connections, etc.)
- Manage/adapt application data access services (e.g. SQL queries, etc.)
- Create, manage and distribute application packages (e.g. all artifacts – UIs, business rules, etc.)
Model-Driven Operations Mgt.
The Design Experience...

Business Rules

GUIs
Model-Driven Operations Mgt.
The Configuration Experience...

The configuration experience is “task-oriented” and provides an “end-to-end” experience.
Model-Driven Operations Mgt.  
Task-Oriented, End-to-End Configuration Experience...
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The Runtime Experience...

- Can be incrementally changed to meet specific usability needs – UI flow and layout
- Supports multiple methods for interacting with the application - desktop or mobile
- Unified experience for composite applications
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General Architecture...
Model-Driven Operations Mgt.
Real-World Example using MES Performance
Model-Driven Operations Mgt.
Real-World Example using MES Performance
Model-Driven Operations Mgt. 
Real-World Example using MES Performance
What does the Model-Driven Framework do for Wonderware MES?

The Model-Driven Framework will enable end-users to extend standard MES work processes to coordinate people and/or other applications to deliver broader, more comprehensive work process management.
Extending the Operational Boundaries of MES
Extending MOM Activities thru Model-Driven In the Context of ISA-95 MOM Activity Categories...

The ISA-95 Standard Defines (4) Categories of MOM Activities

- There are many work processes that need to be managed within each Activity Category, as well as across Activity Categories
- “Classic” MES applications manage a subset of the work processes that occur in each Activity Category
- The Model-Driven Framework enables us to extend standard MES work processes to deliver comprehensive work process management within and across all Activity Categories
Extending MOM Activities thru Model-Driven In the Context of ISA-95 Generic MOM Activities...

Generic Manufacturing Operations Mgt. (MOM) Activities
Source: ANSI/ISA-95-95.00.03

- “Classic” MES applications manage a subset of the work processes that occur in each Activity (e.g. Dispatching, Tracking, etc.)
- The Model-Driven Framework enables us to extend standard MES work processes within an Activity, as well as across Activities
The Journey to Model-Driven Solutions
Model-Driven Operations Mgt.
The Journey to Model-Driven Solutions...

**Wonderware Workflow Investments...**

Over the past 12 to 18 months, we’ve made investments in:
- ✔ Mobile Applications (iOS, WIN8)
- ✔ Forms (Application/Inline Forms, etc.)
- ✔ Workflow (Push Notification Activity, etc.)
- ✔ Package Capabilities (Artifact Packages)

In Q2/2014, we’re making additional investments:
- ✔ New and Improved Forms Capability (HTML 5, Multi-Browser)
- ✔ Enhanced Application Packaging Capabilities
- ✔ Modernizing Enterprise Console

*We continue to evolve WW Workflow into a composite application framework in support of Model-Driven concepts*
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The Journey to Model-Driven Solutions...

Status of Model-Driven Commercial Applications...

We started the evolution with MES Performance application in early 2013...

- Converted select configuration and runtime content to HTML 5
- Will bring to the market in H1/CY2014
- Not a full Model-Driven offering, will complete the process when next-gen forms in Workflow are available in H2/CY2014

We’re adopting Model-Driven concepts with our new recipe management offering called “Recipe Manager – Professional”...

- Web-based solution, built using HTML 5
- Will bring to the market in Q1/CY2014
- Not a full Model-Driven offering, will complete the process when next-gen forms in Workflow are available in H2/CY2014
Model-Driven Operations Mgt.
The Journey to Model-Driven Solutions...

**Status of Model-Driven Commercial Applications...**

Next applications to be re-factored on Model-Driven application framework...

- MES Operations & Quality – waiting for next-gen forms in Workflow (Q2/2014), incrementally delivered over next 18 to 24 months
Thank you!

Questions?
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