



**2003**  
OSISOFT USERS CONFERENCE

# ***Application Framework***

*Richard Beeson*

*Ray Verhoeff*

# Agenda

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- *AF - What is it?*
- *AF Tools and SDK*
- *AF Demo*
  - *User experience*
  - *Developer experience*
- *PI SDK New and Future Features*
- *AF vs. Module Database*

# *AF - What is it?*

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- *Environment for building **models** in order to perform **analyses** on them*



# *Terminology – “Model”*

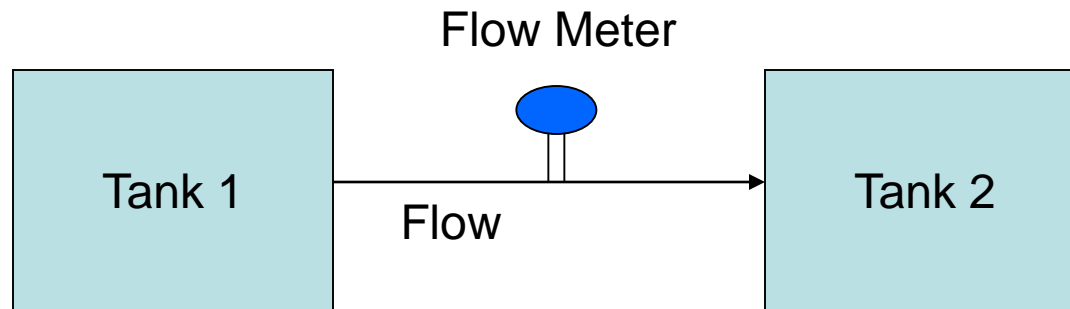
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- *A model describes a collection of process units (or **elements**) and the **connections** between them*
- *Also known as...*
  - *Flow sheets*
  - *Flow schematics*



# *Example – A Simple Model*

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# *Terminology – “Element”*

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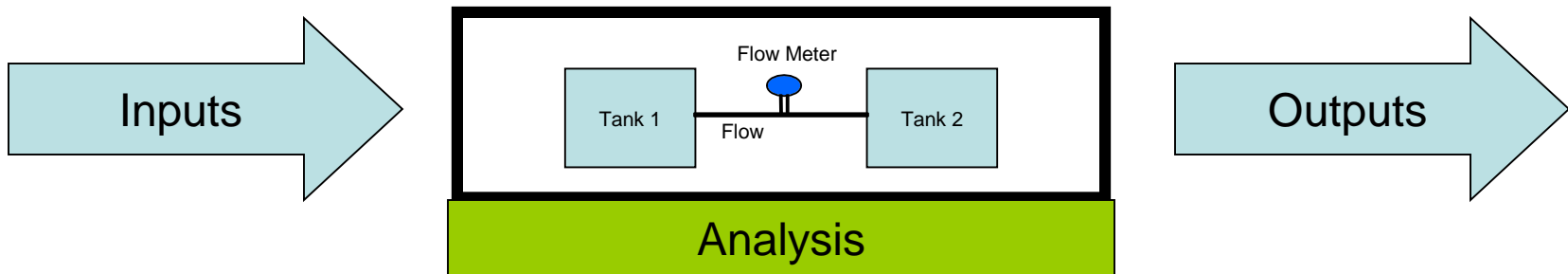
- *“Process units”, such as...*
  - *Tanks, Reactors*
  - *Meters, Analyzers*
  - *Heat Exchangers*
  - *Flows*
- *Have zero or more connections*
  - *In*
  - *Out*
  - *Attached*



# *Terminology – “Model Analysis”*

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- *To Evaluate or “Run” a Model*
  - *Assign an Analysis*
  - *Read attribute values of elements*
    - *Inputs*
  - *Evaluate the data*
  - *Generate new attribute values*
    - *Outputs*



# *Terminology – “Case”*

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- *A Case is a snapshot created by running a Model Analysis which includes*
  - *Time period of evaluation/run.*
  - *State of the model at run time.*
  - *Data Inputs, Outputs, Adjustments used at run time.*



# *Working with AF - Tools*

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- *ProcessBook Modeler*
  - *Build, analyze and present **models** graphically*
  - *Associate graphical representations with **element** types*
- *Excel Add-ins*
  - *Configuration*
  - *Data*
- *SMT 3.0 (AF Explorer)*
  - *Manage and browse **models**, **elements**, etc.*



# *Working with AF – SDK*

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- *Programmatic access to all AF components and controls*
- *Developer's toolkit (wizards) for building Analysis plug-ins*
- *Used by OSIsoft to build all of the tools you will see*



# AF Demo

The screenshot displays the PI - ProcessBook software interface, titled "PI - ProcessBook - [CHOCOLATEMILKMODEL.PDI]". The interface includes a menu bar (File, Edit, View, Insert, Tools, Draw, Arrange, Window, Help), a toolbar with various drawing and editing tools, and a status bar at the bottom.

The main workspace shows a process flow diagram for a chocolate milk model. The diagram includes several components: MilkTank1, MilkTank2, MilkNode, MilkMeter, ChocMilkMeter, MixHopper, Mixer, PackagingUnit, MixTruck, and ChocMilkTruck. A graph in the upper right corner displays a line plot with a peak value of 700.

The left sidebar contains the "AF Property" panel, which is currently set to the "General" tab. It shows the following information:

- Name: MilkTank1
- Description: Primary Tank for Storing White Milk
- Template: Tank
- Type: Node
- Categories: Tutorial

Below the AF Property panel is the "Element/Template/Model" panel, which shows a list of elements under the "Chocolate Milk Tutorial" category. The elements listed are:

- ChocMilkMeter
- ChocMilkTruck
- ChocolateMilkModel
- MilkMeter
- MilkNode
- MilkTank1
- MilkTank2

The bottom status bar indicates the current model is "ChocolateMilkModel", the current analysis is "Volume Balance", and the current case is "Start Time: 5/8/2003 8:00:00 AM End Time: 5/8/2003 9:00:00 AM". The status bar also shows the "Output" tab selected, with buttons for Results, Adjustments, Log, Layers, Elements, Connections, and Report.

# *Future of AF...*

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- *RtReports*
- *ICE 2.0*
- *PI OLE DB*
- *ProcessBook*
  - *Modeler enhancements*
- *Datalink*
  - *AF data and configuration enhancements*

# PI SDK

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- *Callable from .NET*
  - *Use provided "interop"*
- *Eventually create .NET equivalent*
- *Committed to COM-based PI SDK*

# *PI SDK 1.3.0 – just released*

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- *Event Pipes*
  - *PI Modules*
  - *PI Batches*
  - *PI Unit Batches*
  - *PI Transfer Records*
- *IPICalculation*
- *Persisitence*
  - *Extended to new types*



# *PI SDK 1.3.1 – beta soon*

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- *Data Writing*
  - *PIPoint.Data.UpdateValues*
  - *PIPoint.Data.RemoveValues*
- *Annotations*
- *Calculations*
  - *Familiar API calculations plus new ones*
- *New data retrieval functions*
  - *InterpolatedValues*
  - *TimedValues*
  - *Summaries*



# *PI SDK 1.3.1*

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- *PointList operations*
  - *Eventpipe*
  - *Snapshot*



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# *PI SDK 1.3.2 and beyond*

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- *Buffering of SDK data writing*
- *More PointList.Data methods*
- *More eventpipes*
  - *Exceptions from other databases*
- *Annotations*
  - *Object for structured annotations*
  - *multiple annotations per event*
  - *known types*
- *Archive management functions*



# *AF versus MDB*

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- *AF*
  - *Connectivity*
  - *Calculations*
  - *Model based Analysis*
- *MDB*
  - *Hierarchical Data / Navigation*
  - *Batch*



# *AF versus MDB*

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- *Both AF and MDB*
  - *Integrate with ProcessBook*
  - *Integrate with DataLink*
  - *Continue to be enhanced*



# Call to Action

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- *Developers*
  - *Build flow sheet applications on AF*
- *Investigate Sigmafine*
  - *Building good models is manageable*
  - *See “Sigmafine 4.0 – The Next Generation” presentation Tuesday at 10 AM.*
- *Visit the AF and Sigmafine Tables in the Demo Room*

# Questions?

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