PI Application Framework

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Overview

- PI Application Framework Introduction
- PI Application Framework Key Features
- Building a PI-AF Application/Solution
- Wrap Up
  - Schedule
  - Related UC2002 Sessions
 - Resources
  - Call to Action

Introduction

- What is the PI Application Framework?
  - A Brief History

- Extends the PI System
  - Builds on technology and architecture of the PI System
  - Fully Programmable
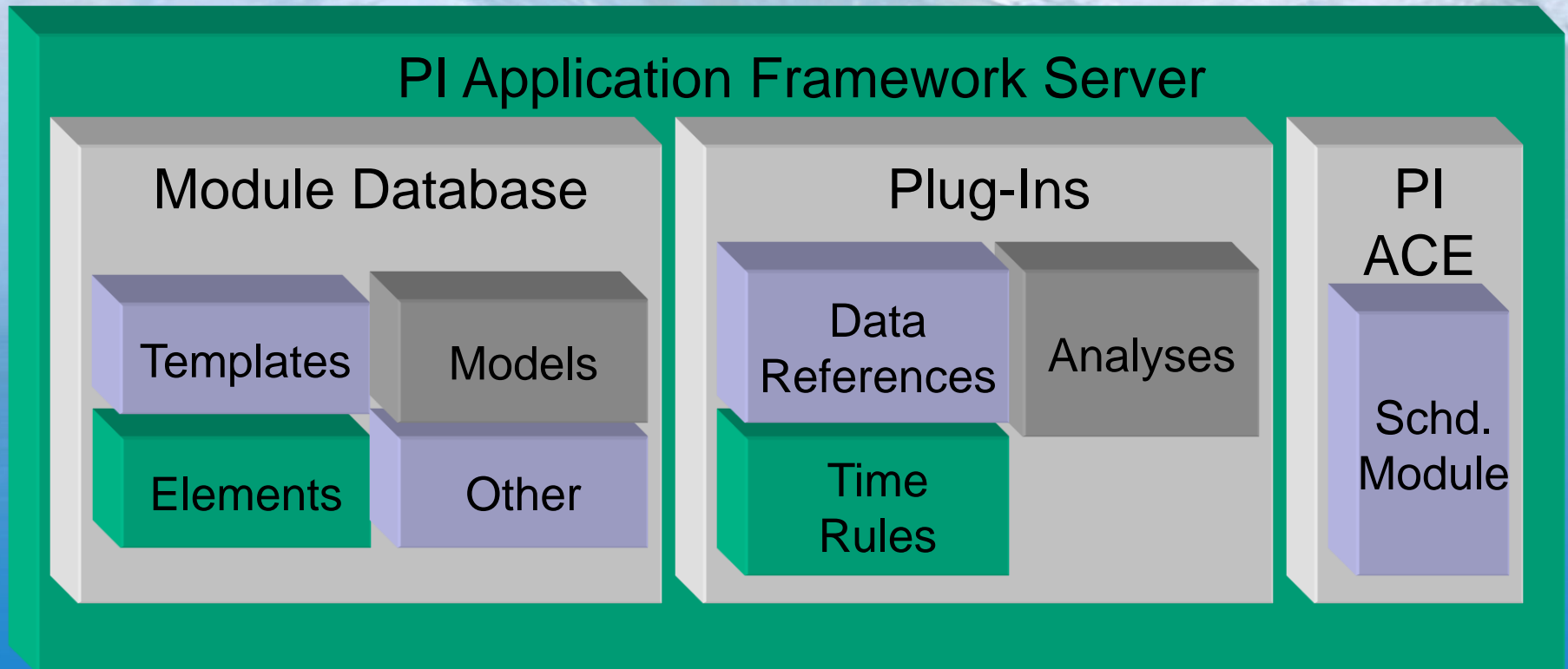   - All data is exposed

Introduction

- Adds New Features and Functionality
  - Organizational and Structural Information
  - Model Analysis
  - Business, Process, Manufacturing Rules/Logic
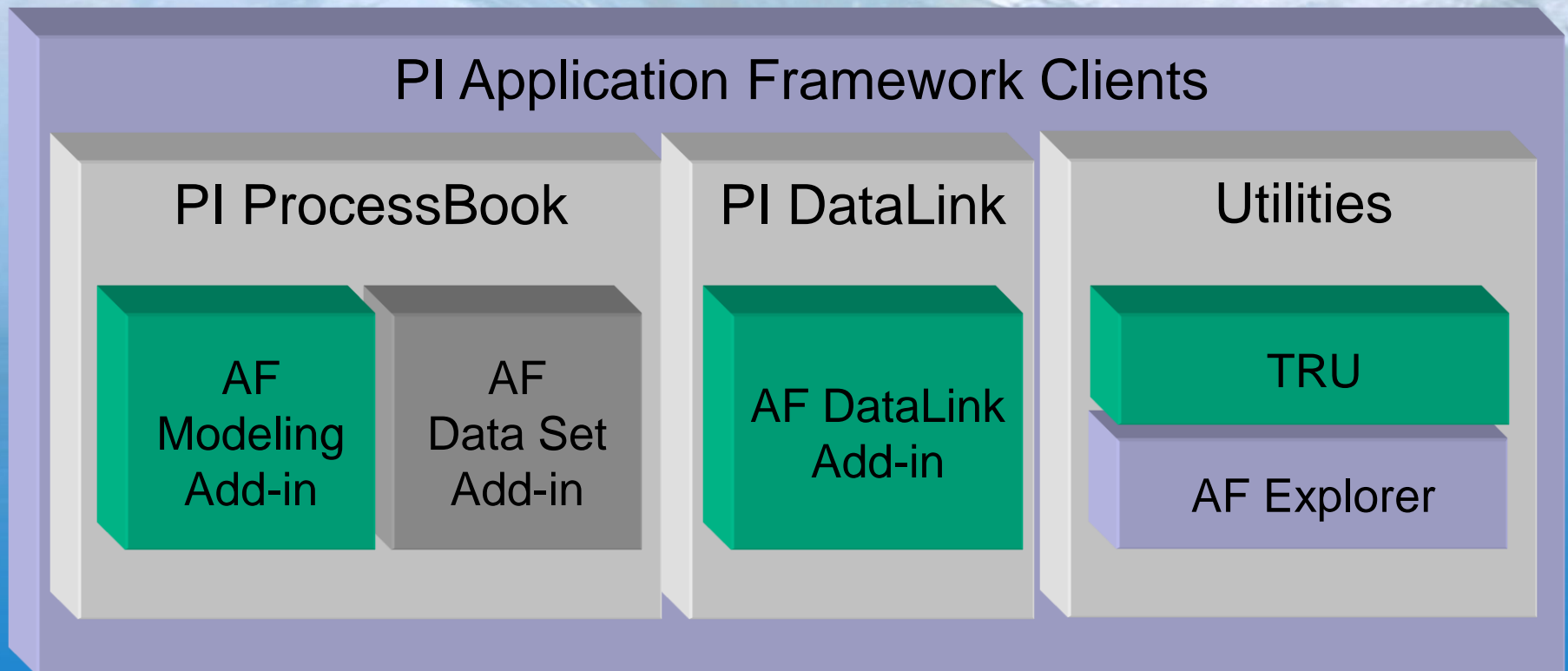 - Contexts

PI Application Framework
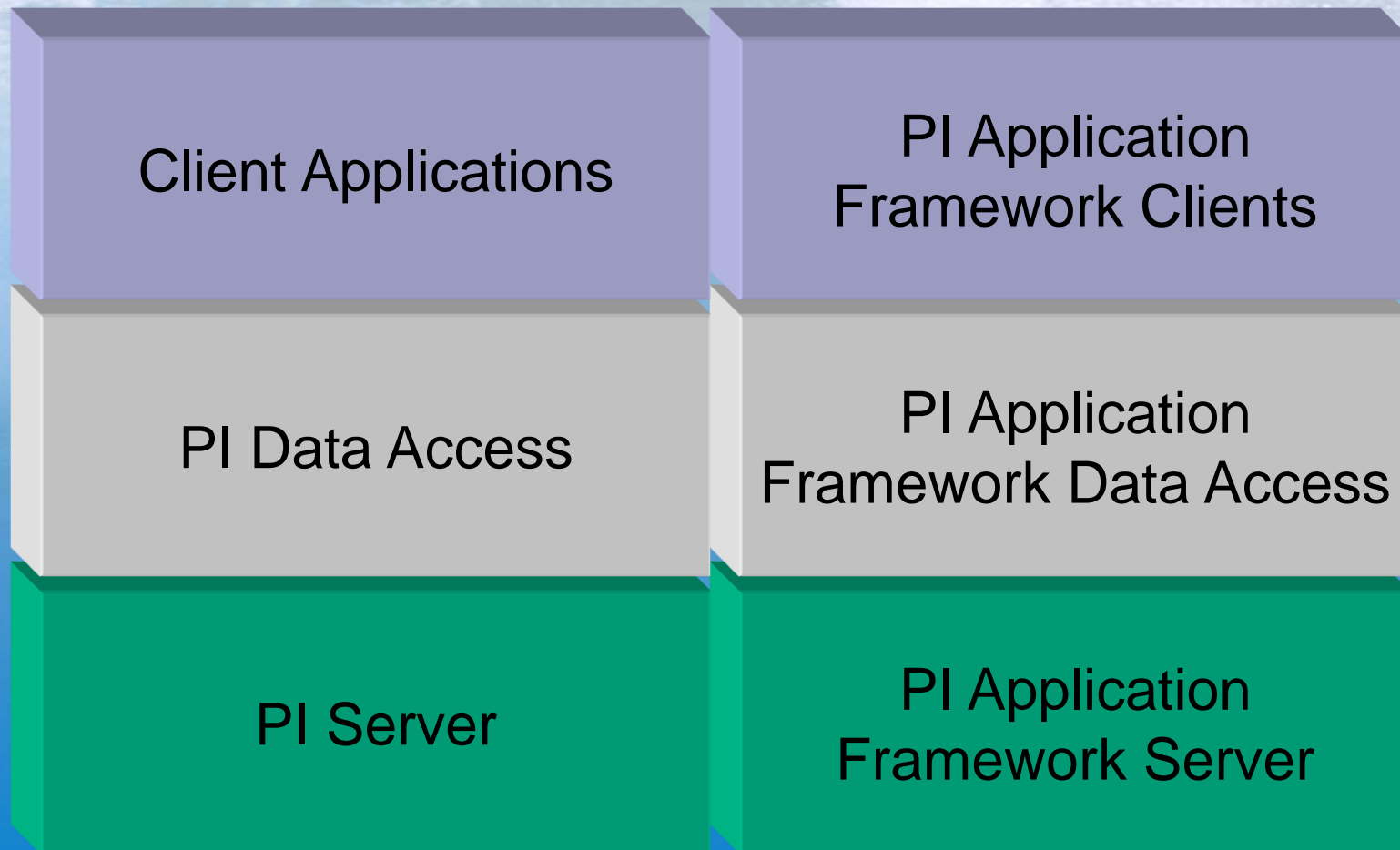
Client Applications	PI Application Framework Clients
PI Data Access	PI Application Framework Data Access
PI Server	PI Application Framework Server

PI Application Framework Server

PI Application Framework Data Access

PI Application Framework Clients

PI Application Framework Clients

PI ProcessBook

- AF Modeling Add-in
- AF Data Set Add-in

PI DataLink

- AF DataLink Add-in

Utilities

- TRU
- AF Explorer

Key Features

- PI-AF Explorer
  - Common Controls
- Element Templates
  - Elements
- Models
  - Connectivity
  - Cases
- Plug-Ins
  - Data References
  - Time Rules
  - Analysis Rules

- Units of Measure
- Transfers
- Tables
- Context
- .NET
  - COM Interoperation
- Application Development
- Client Integration
- Utilities
  - TRU

Key Features – PI-AF Explorer
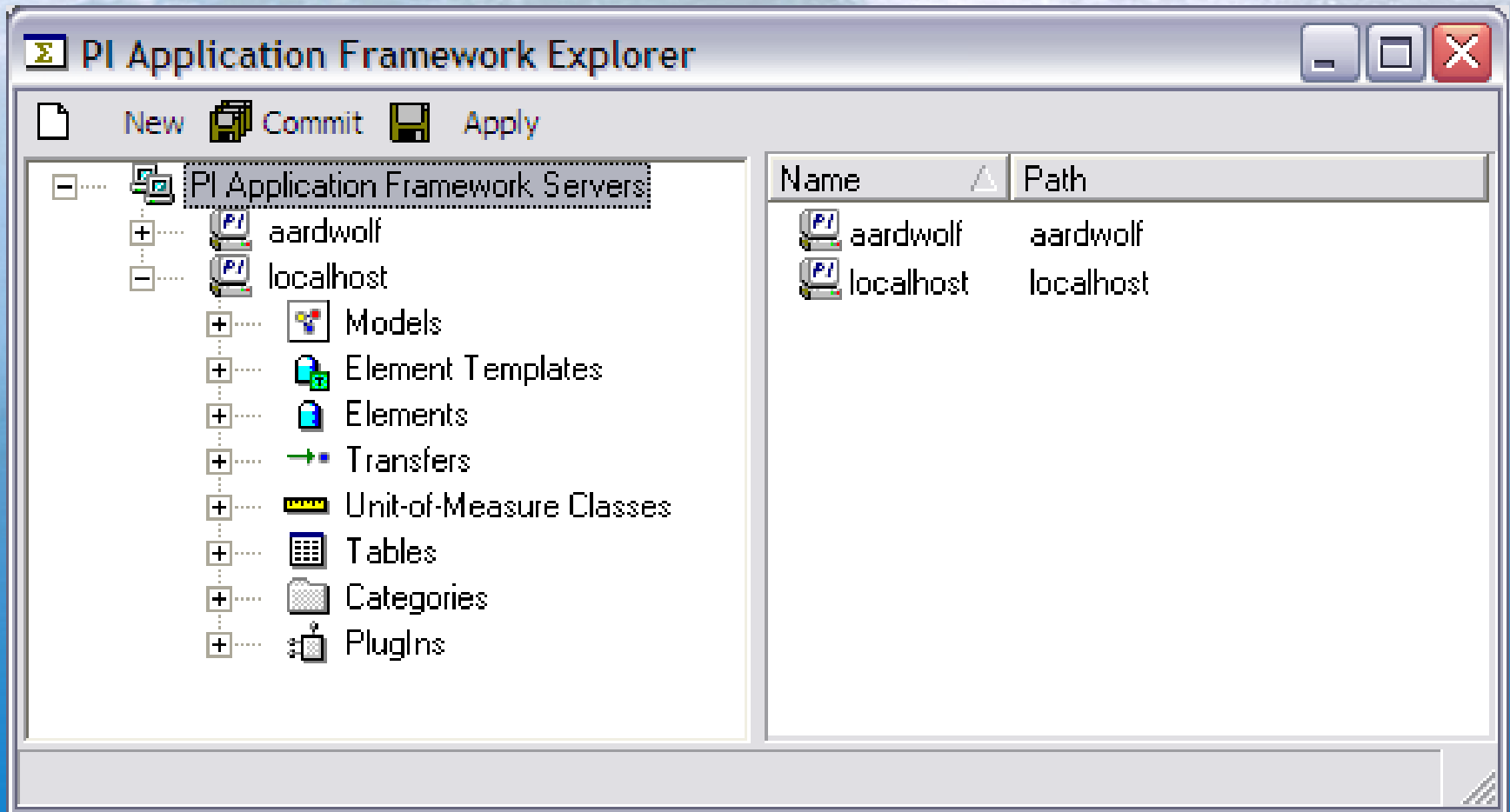
Key Features – Element Templates

Element Template Properties

General | Elements | Attributes

Name: Tank

Description: Tank Element Template

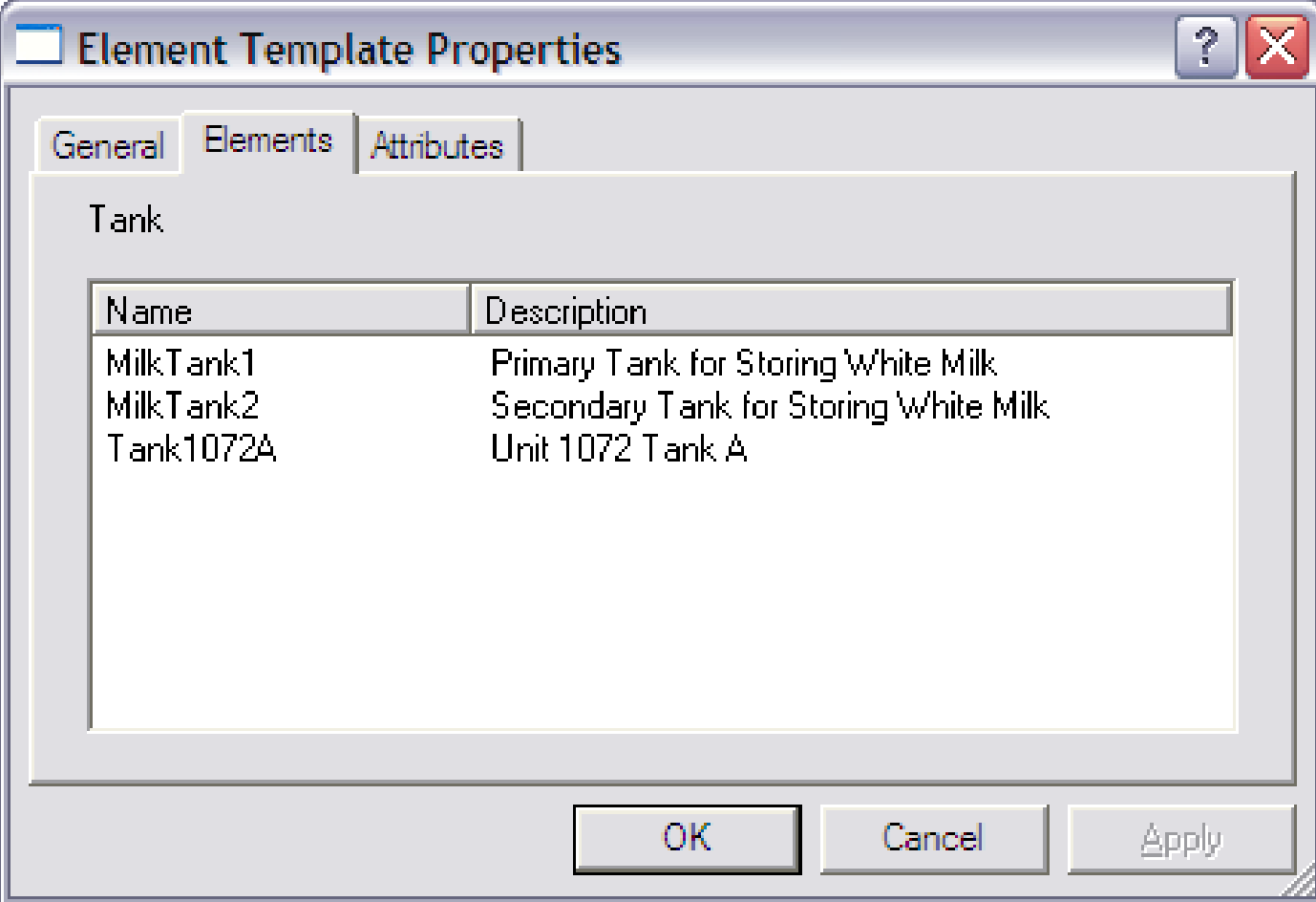Parent: [blank]   Category: Tutorial

Type: Node   Modifier: Storage

Default Attribute: [blank]

Unique ID: 74a57330-3bb7-4481-b863-73bc850ff226

Version: 12/31/1969 4:00:01 PM Rev 5

OK | Cancel | Apply

Key Features – Element Templates

Key Features – Element Templates

Key Features - Elements

Key Features – Models (General)

Model Properties

General | Layers | Links | Model Analyses

Name: ChocolateMilkModel

Description: Chocolate Milk Tutorial Example

Category: Tutorial

Unique ID: 54f6189d-61e9-4bfc-8227-7964b386c0d6

Version: 12/31/1969 4:00:01 PM Rev 4

[OK]   [Cancel]   [Apply]

Key Features – Model (Connectivity)
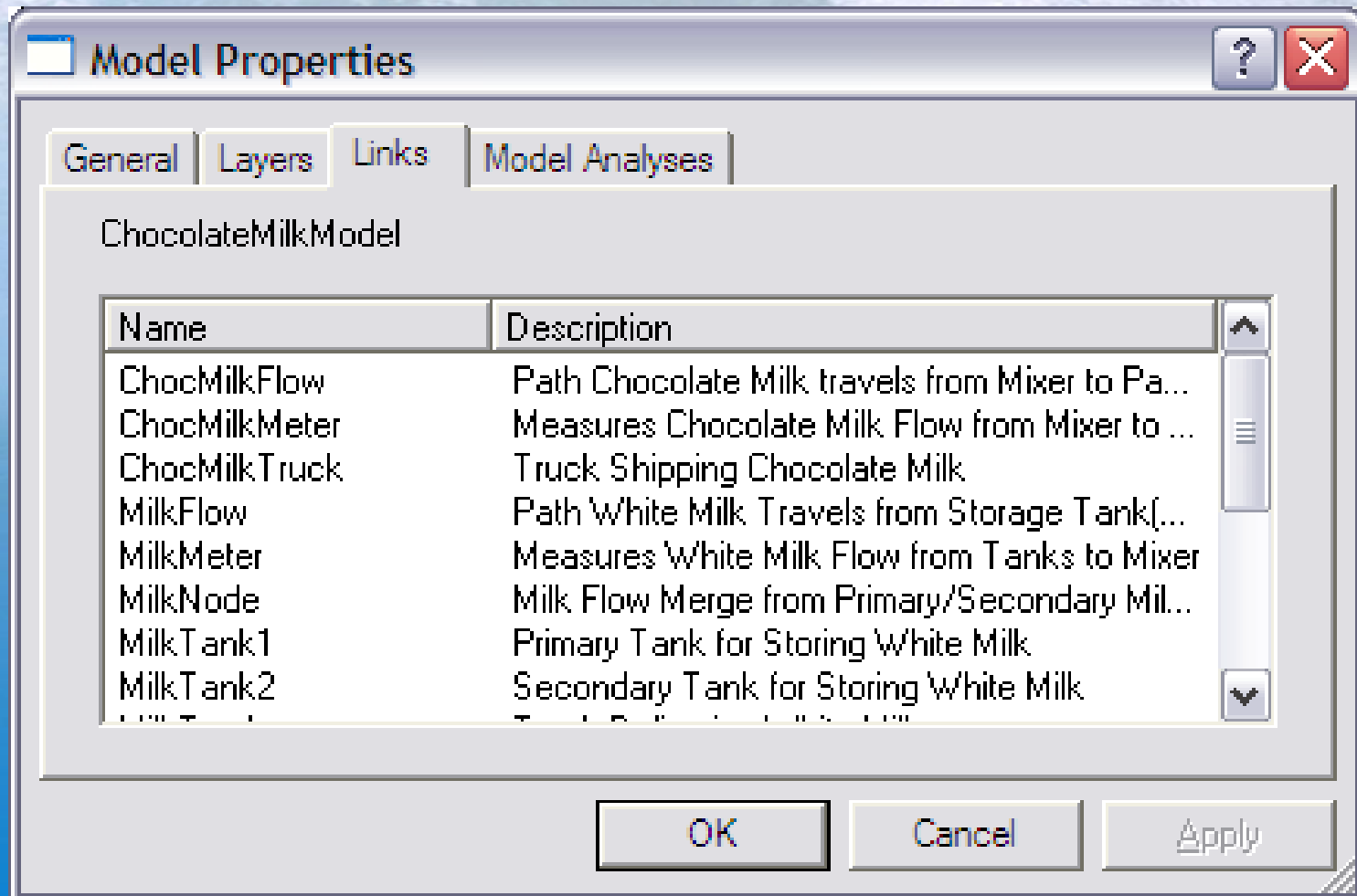
Key Features – Model (Connectivity)
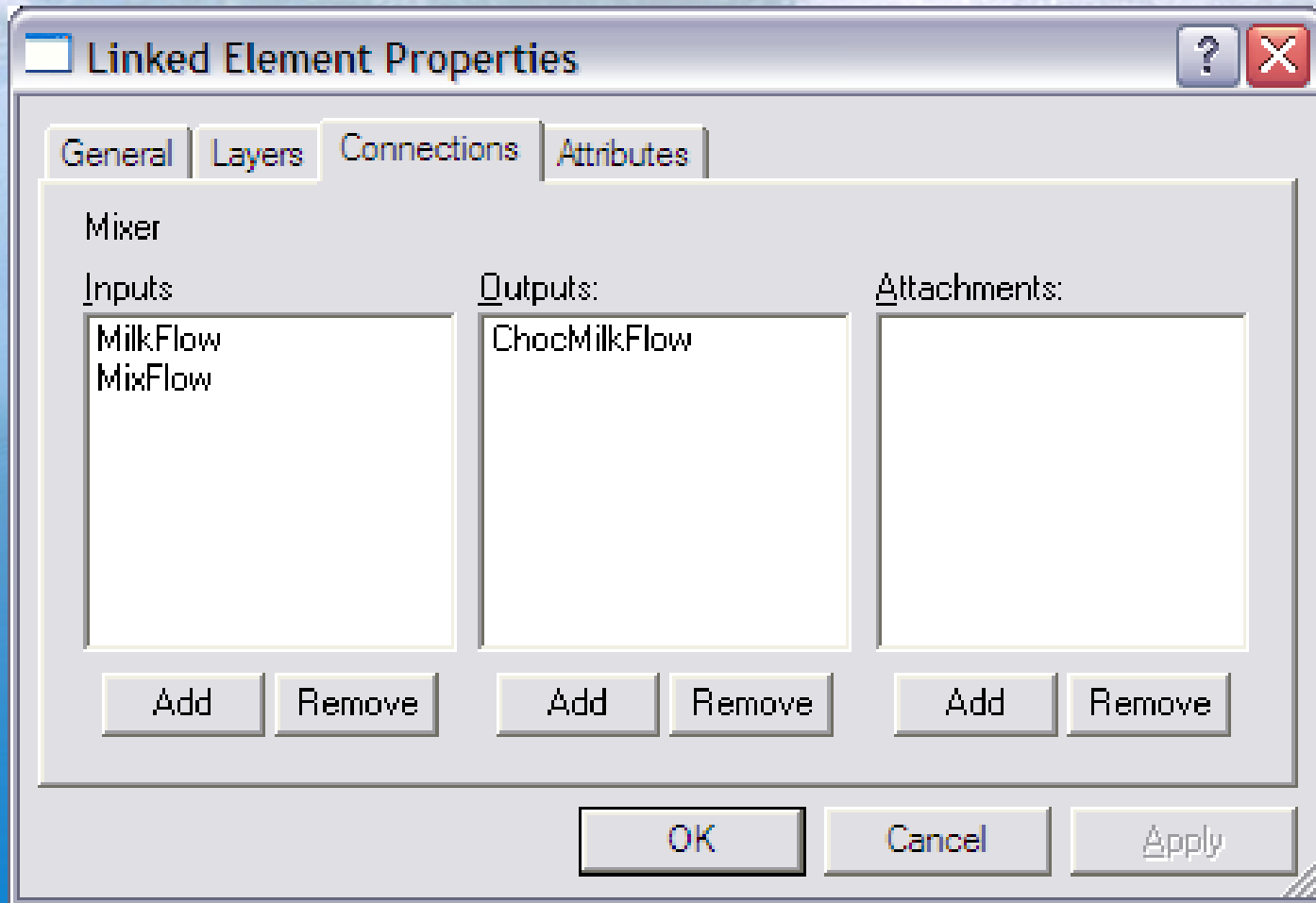
Key Features – Models (Layers)

Model Properties

General | Layers | Links | Model Analyses

ChocolateMilkModel

Name	Description
FlowLayer	Flow Layer in Chocolate Milk Model
FourthLayer	Fourth Layer in Chocolate Milk Model
MainLayer	Main Layer in Chocolate Milk Model
SecondLayer	Second Layer in Chocolate Milk Model
ThirdLayer	Third Layer in Chocolate Milk Model

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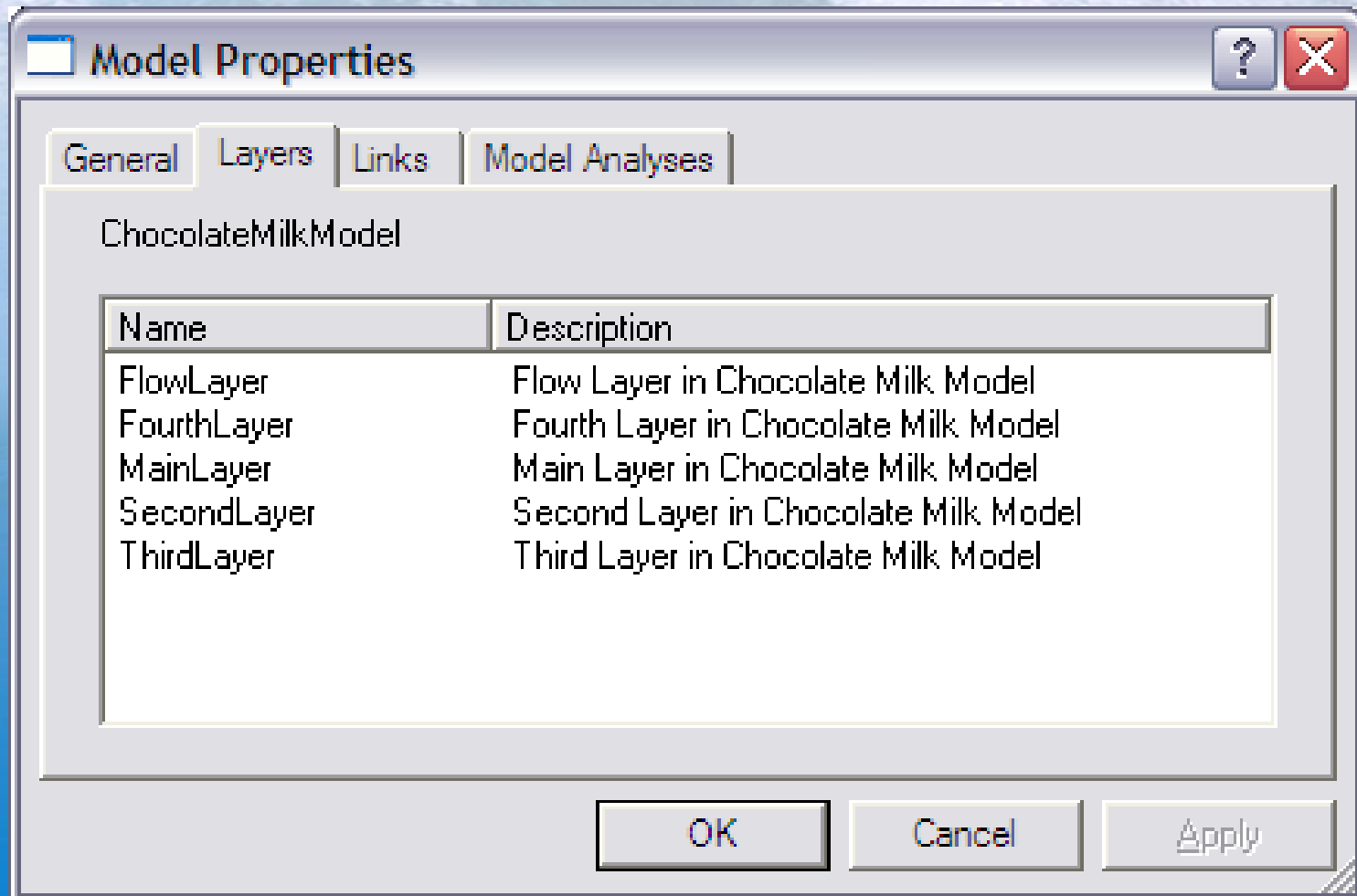
Key Features – Models (Analyses)
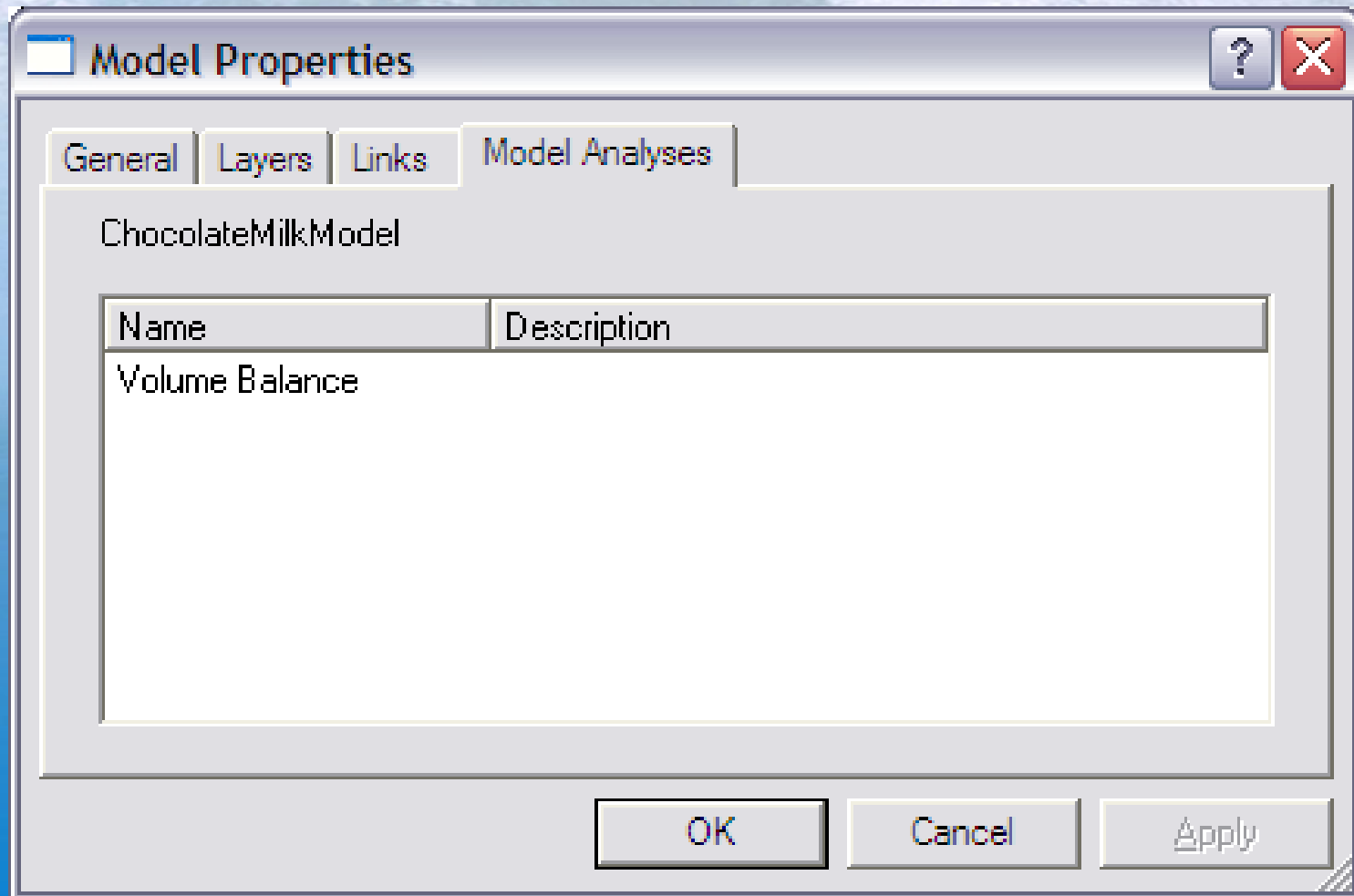
Key Features – Model (Cases)

Key Features – Plug-Ins
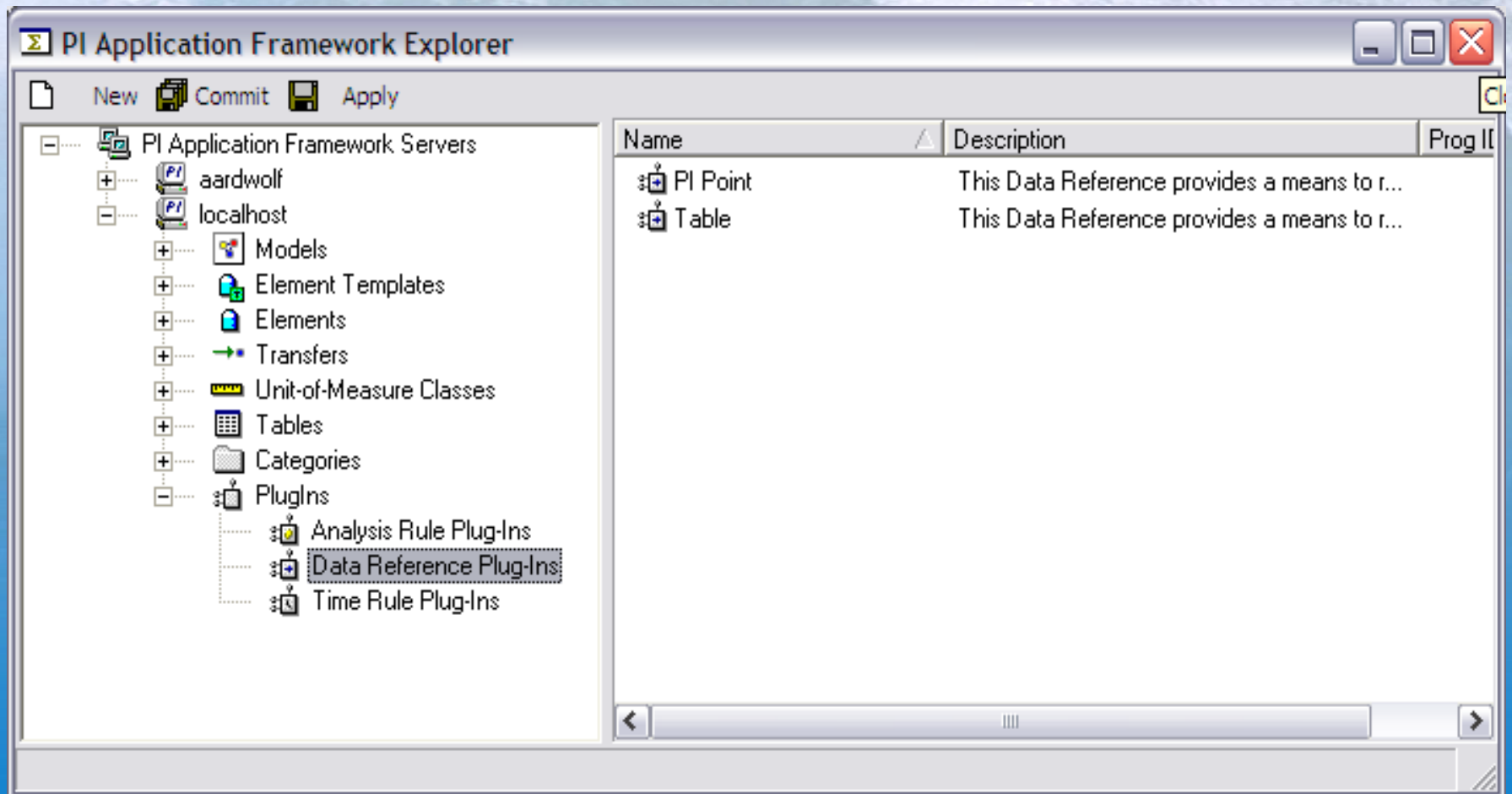
Key Features – Data References

- Provides Logic Associating Attributes and Data
  - Purpose is to return data (single or history) for a specific time or time range
- Simple "Mapping" Data References
  - Constant
  - PI Point
  - AF Table
  - Relational Database
  - Product Database

Key Features – Data References

- Computational Data References
  - Tank Volume Calculations
  - Correctional Calculations
  - Other non linear Transformations
  - Calculations which are functions of other attributes
    - Product, Batch, Operating Mode
  - Anything ever put in a PI-PE or PI Equation Library

Key Features – Data References

- Context Sensitive Data References
  - Model Sensitive Data
  - Case/Analysis Sensitive Data
  - Time/Time Range Sensitive Data
  - Values of other Attributes
    - Product, etc.

Key Features – Time Rules

- Provides logic for determining the start time and end time for a presentation or evaluation context
- Examples
  - "*-1d" to "*"
  - Retrieve start and end time of a batch
  - Retrieve start and end time of a transfer
  - Retrieve shift start and end time from production database
  - Get next period relative to current time or period

Key Features – Analysis Rules

- Provides logic for operating on model (collection of elements)
- Primary activity is to collect data for a time rule and output results
    - Data Reconciliation
    - Down Time Analysis
    - Composition Tracking
    - Gross Error Detection
    - Efficiency Calculations
    - Simulations or Predictions

Key Features – Units of Measure

Key Features - Transfers

- Transient Connectivity
- Characteristics
  - Source Element
  - Destination Element
  - Start Time
  - End Time
  - User Defined Attributes ("Element")
- Context Searches (Filters)

Key Features – Transfers

Key Features – Transfers

Key Features - Tables

- ADO.NET Records Sets
  - Place to store simple tables of associated information
    - Strapping Tables
    - Composition
    - Reason Codes
    - Etc.

Key Features - Context

- Presentation
  - Model
  - Case
  - Time Range
  - Time

Key Features - .NET

- .NET
  - AF SDK written in C#
  - .NET Classes
- COM Interoperability
  - DLL provided
  - ProcessBook, AF Common Controls depend on interop.

Key Features – Client Integration

- ProcessBook
  - AF Data Set Add-In
  - AF Modeler Add-In
- DataLink
  - AF Add-In to Excel
- Utilities
  - AF Explorer
  - AF Common Controls
  - TRU
- (FUTURE) ICE Integration

Demo
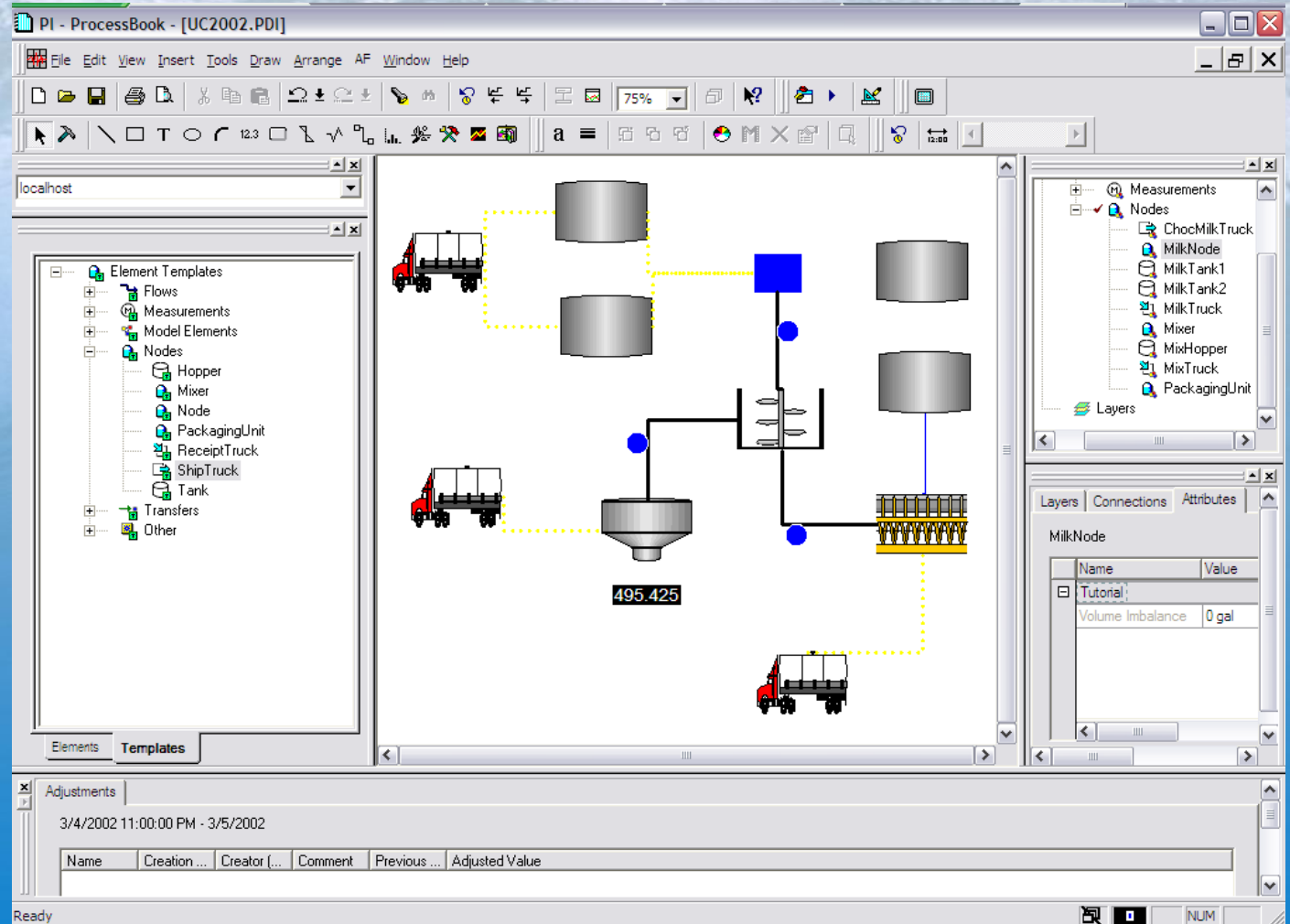
Building Applications and Solutions

- Identify Schema
  - Element Templates
- Identify Key Abstractions
  - Data References
  - Time Rules
  - Analysis Rules
- Identify Presentation Needs
  - Reports, Displays, etc.
- Plumbing and Integration are Covered

Wrap Up

- Summary
- Schedule
- Related UC2002 Sessions
- Resources
- Call to Action

Summary

- Provides Organizational and Structural Integration with the PI System

- Provides Infrastructure for Deploying and Sharing Business, Process and Manufacturing Rules in the PI System

- Integrates with Client Applications

- Provides Framework for Building Generalized and Reusable Solutions

Schedule

- Early Adopter Program
  - Now
- Beta Program
  - Early summer 2002
- Release
  - Late fall 2002

Related Sessions

- Presentations
  - PI Application Framework
    - (111) Monday 1:00 PM, (351) Wednesday 8:00 AM
  - .NET Experiences
    - (215) Tuesday 10:50 AM
  - Application Module Example Using the Application Framework
    - (112) Monday 1:50 PM, (352) Wednesday 8:50 AM

Related Sessions

- Presentations
  - Sigmafine 4.0
    - (NEW TIME) (145) Monday 3:50 PM
    - (342) Wednesday 8:50 AM
  - PI SQC
    - (154) Monday 3:00 PM
- Demo Room (Tuesday 1:00 PM - 6:00 PM)
  - PI Application Framework
  - Application Framework Applications
  - Sigmafine 4.0

Resources

- PI Application Framework Beta
  - Web Site
    - General information and access to early adopter and beta downloads – watch http://support.osisoft.com for announcements
  - Early Adopter Program
    - Targeting application developers with immediate development or design plans
    - Contact Richard Beeson richard@osisoft.com for Information
  - Beta Program
    - Targeting application developers and end users looking to evaluate, learn about and provide feedback for the PI Application Framework
    - First beta early summer 2002

Call to Action

- Application Developers
  - Sign up for early adoption beta program
  - Begin porting or developing applications on the PI Application Framework
- Corporate Developers
  - Begin design process for integrating PI Application Framework
  - Sign up for beta program (or early adoption if immediate needs are present.)
- IT / Administrators
  - Plan resources - white papers to be provided on beta website

Call to Action

- All Users
  - Start to think about and identify
    - Organizational / Structural Abstractions
      - Equipment
      - Units
      - Physical/logical Models
    - Data References
      - Business/Process/Manufacturing rules or logic
      - Integration with existing (non temporal) data
    - Analyses
      - Time domain operations on organizational or structure information
    - Time Rules
      - Identify time scopes relevant to business