

RtAnalytics

Get More Value Out of Your
Data

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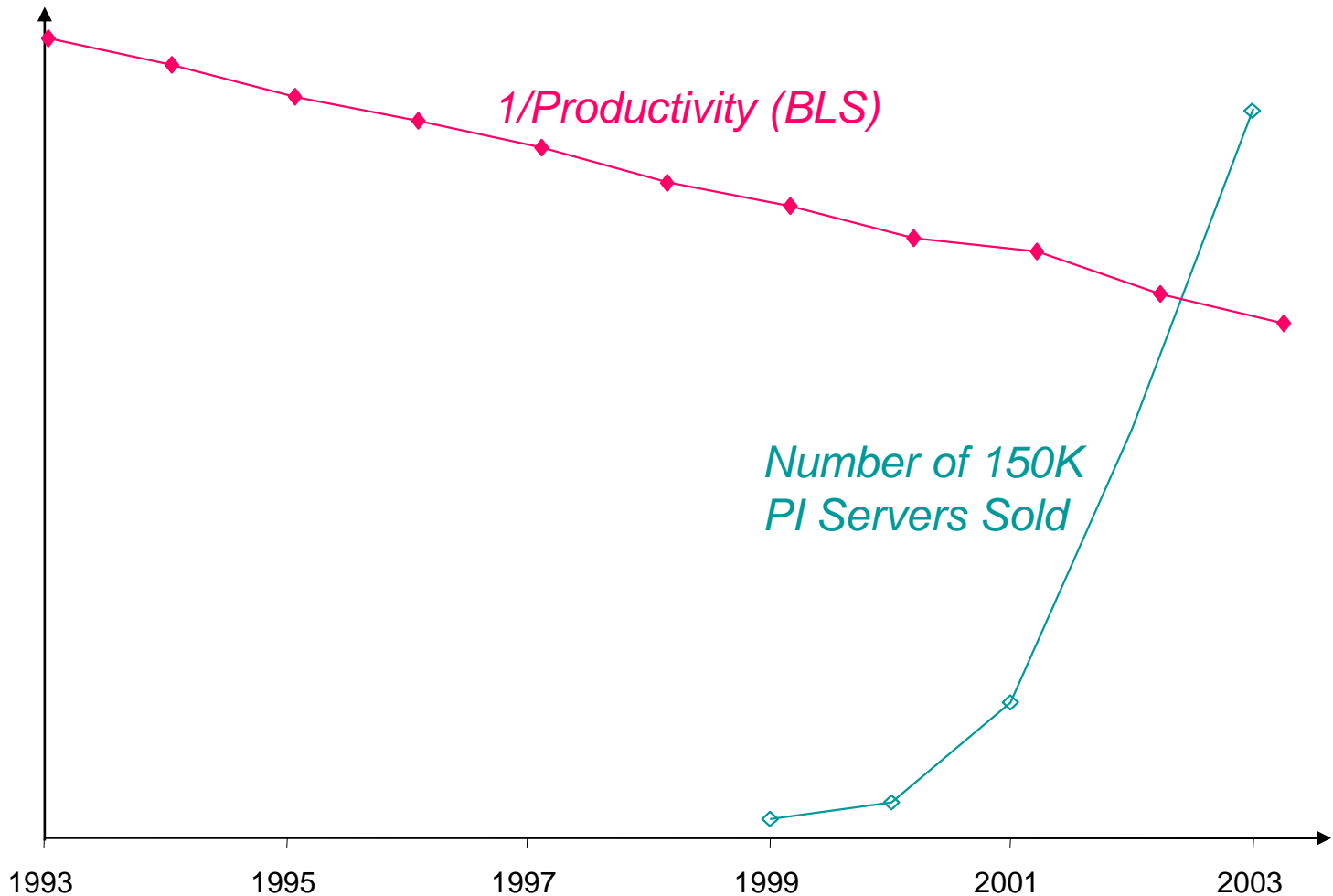
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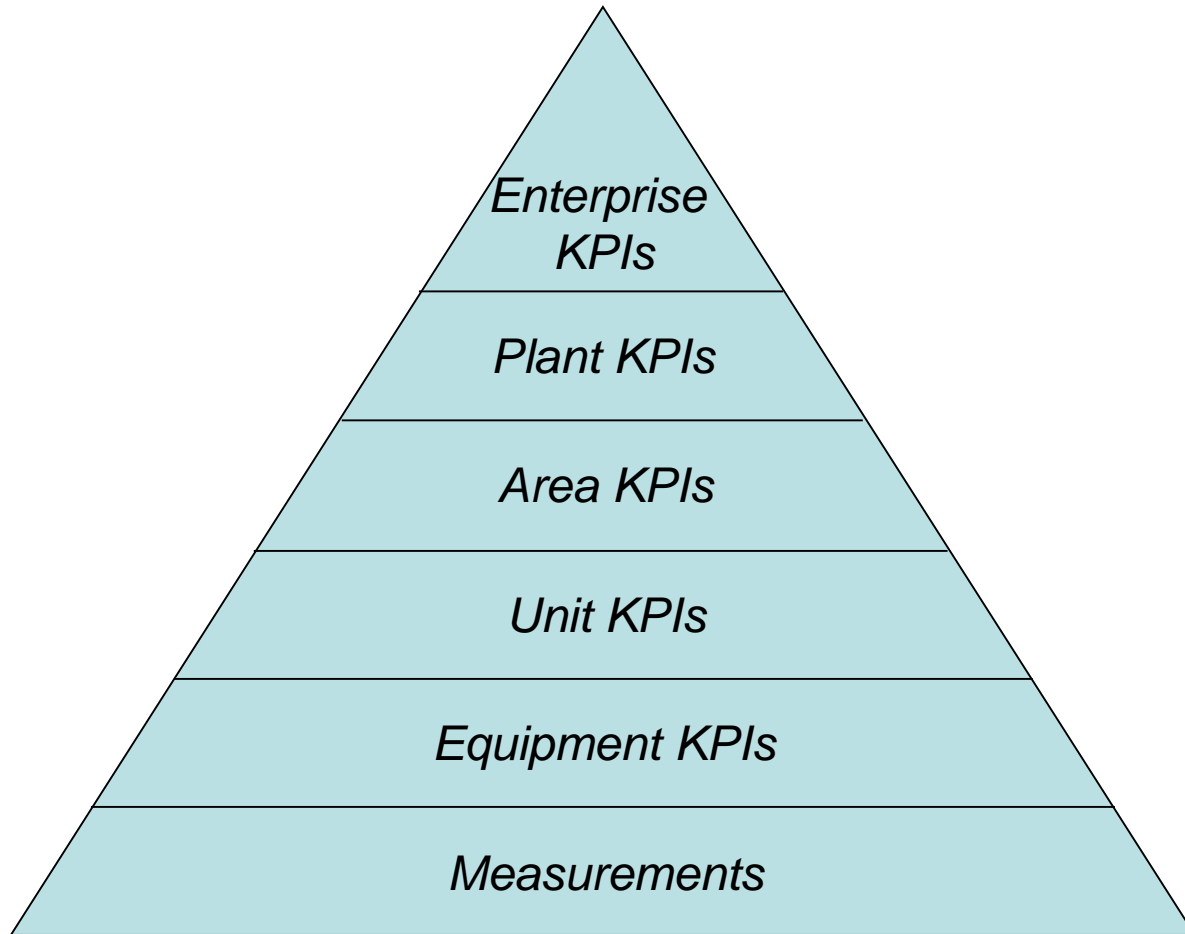
OSISOFT USERS CONFERENCE 2004

DISCOVER YOUR PORTAL TO PERFORMANCE

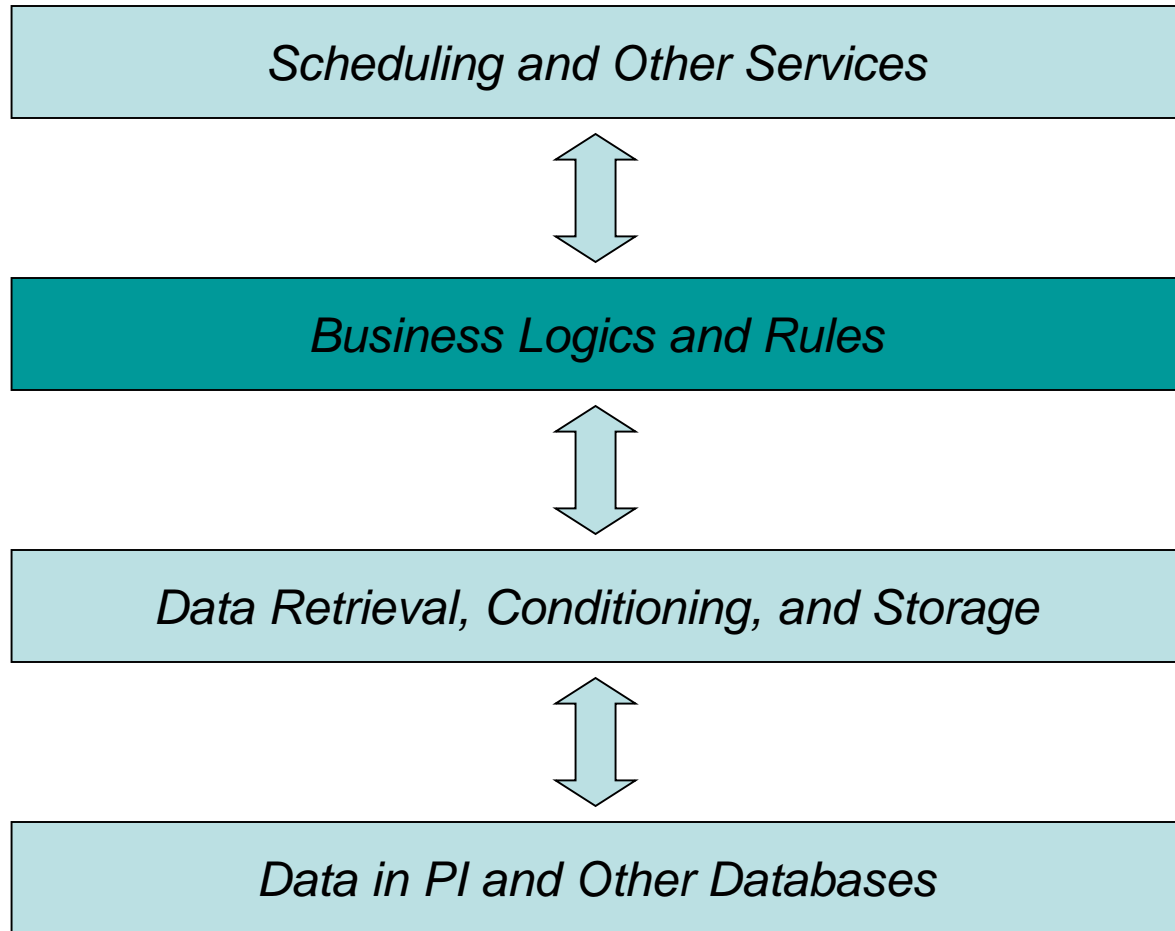
Information Overload?



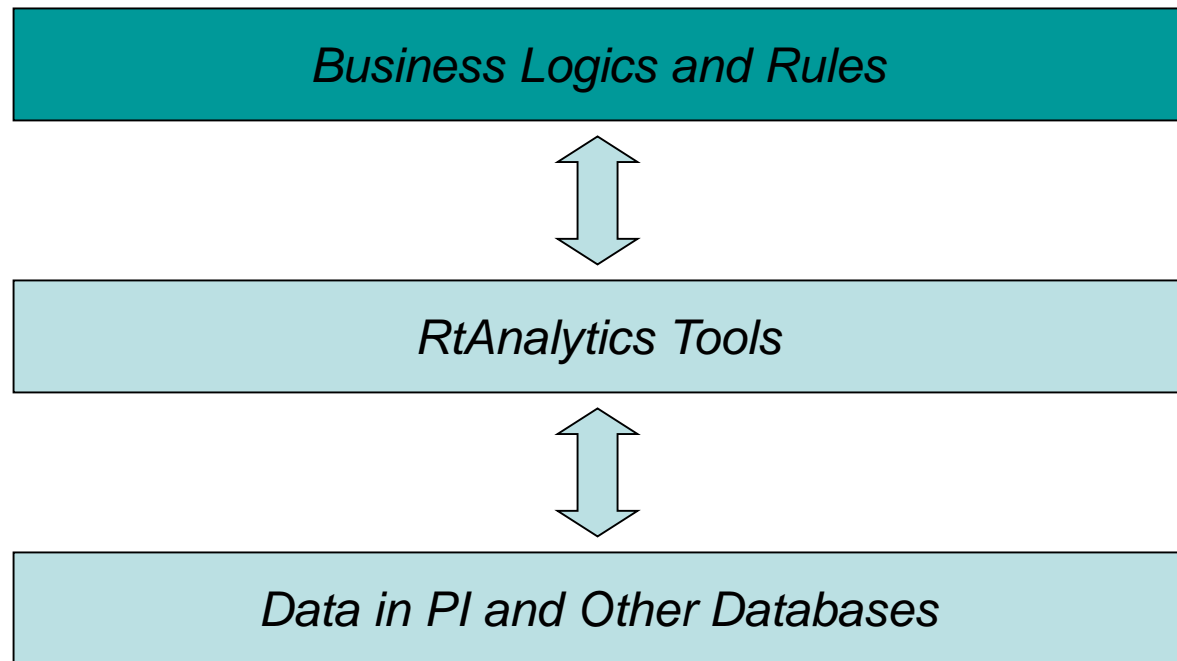
Hierarchical Information Management



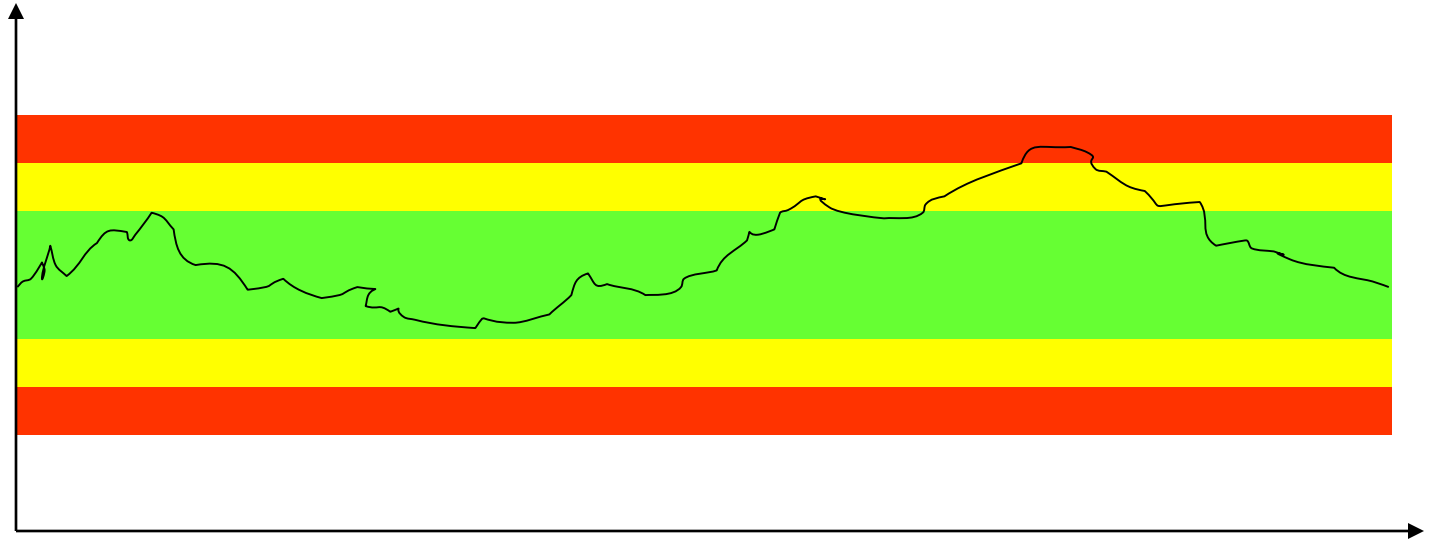
Data Analysis



RtAnalytics Tools

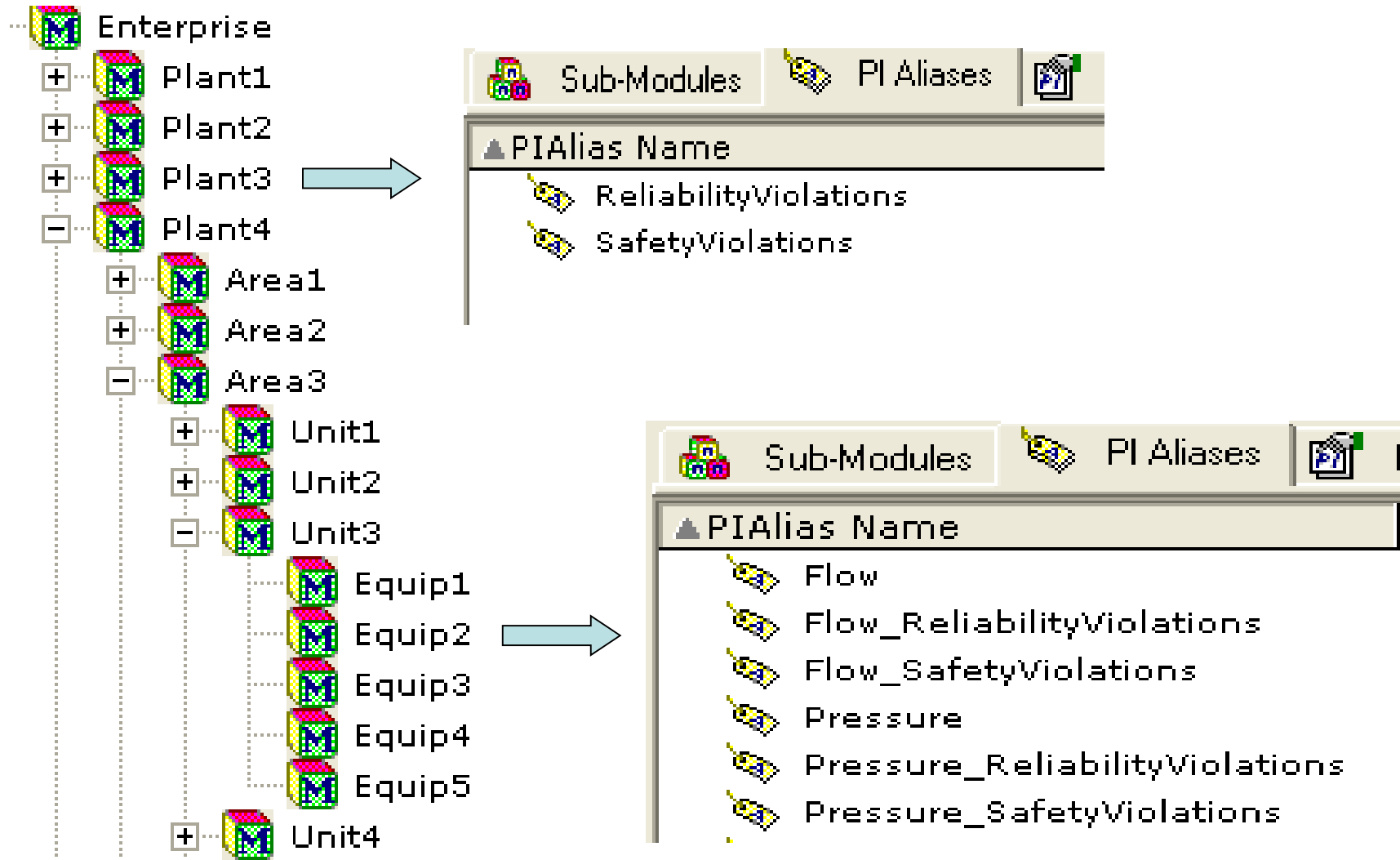


Example: Process Monitoring



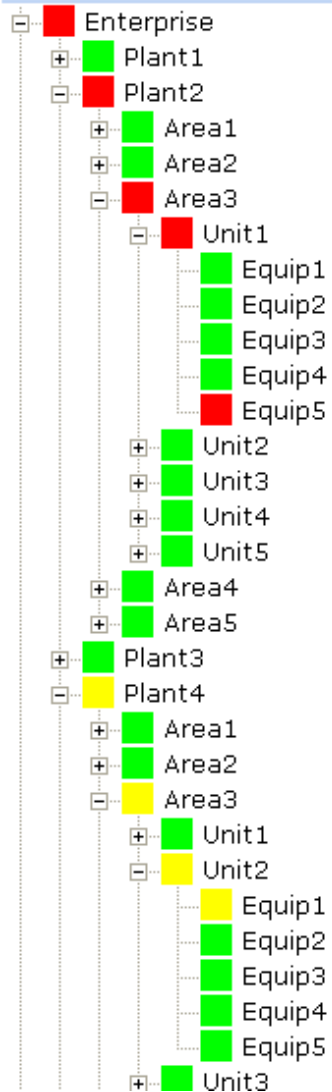
- Time excursion in each region
- Lots of measurements
- Arbitrary number of regions
- Multi-dimensional
- Other rules/logics

PI Module Database Structure

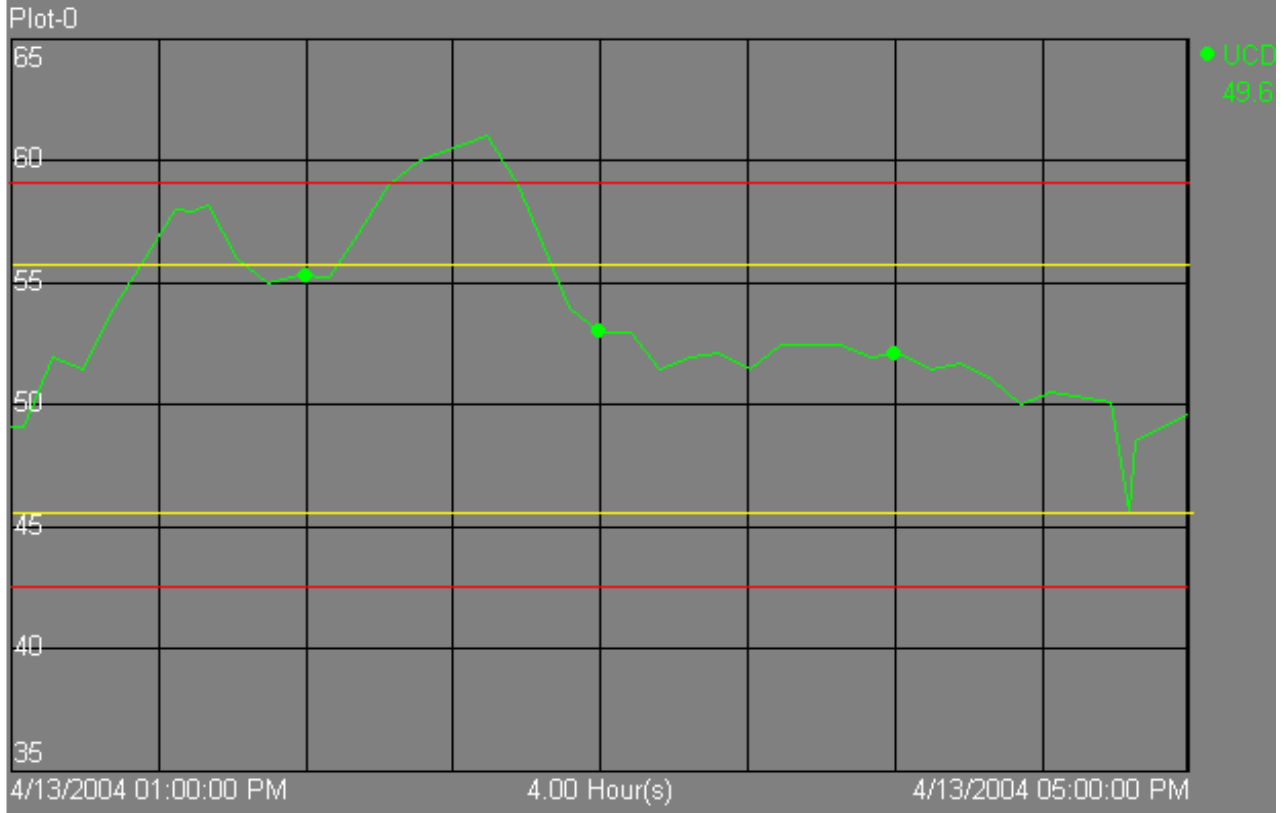


Visualizing Results

RtTreeView



RtTrend



ACE Implementation Details

- One calculation with 4 lines of code (+6 lines of initialization code):

CurTime = mdbExeTime

RLViol.Value = Source.TimeLE(PrevTime, CurTime, RLLowLimit)
+ Source.TimeGE(PrevTime, CurTime, RLUpperLimit)

SLViol.Value = Source.TimeLE(PrevTime, CurTime, SLLowLimit)
+ Source.TimeGE(PrevTime, CurTime, SLUpperLimit)

PrevTime = mdbExeTime

- Applied it to ~1600 measurements
- Another calculation summarizing “children”
- ~100,000 lines of ACE code

Main ACE Features

- VB 6 and VB .Net
- Cache server
- Recalculations
 - Manual
 - Automatic
- Multiple contexts
- Central management
- Web service

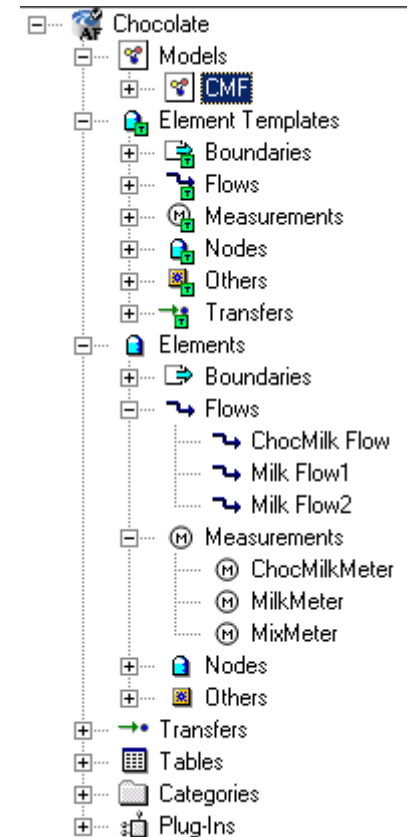


What is Sigmafine 4.0 ?

- Object Model of the Facility
 - Graphical View
 - Flowsheet Connectivity
 - Rules
 - Analyses
- Built on the PI Analysis Framework
 - New released product
 - Platform for Flowsheeting Applications

What is PI Analysis Framework ?

- Modular and Reusable Structure
 - Templates
 - Elements
 - Plug-Ins
 - Units of Measure
- .NET based



What does Sigmafine 4.0 do?

- Identifies Data Error
- Data Validation and Unification Tool
 - ERP systems and other Applications
- Measurement Audit Tool

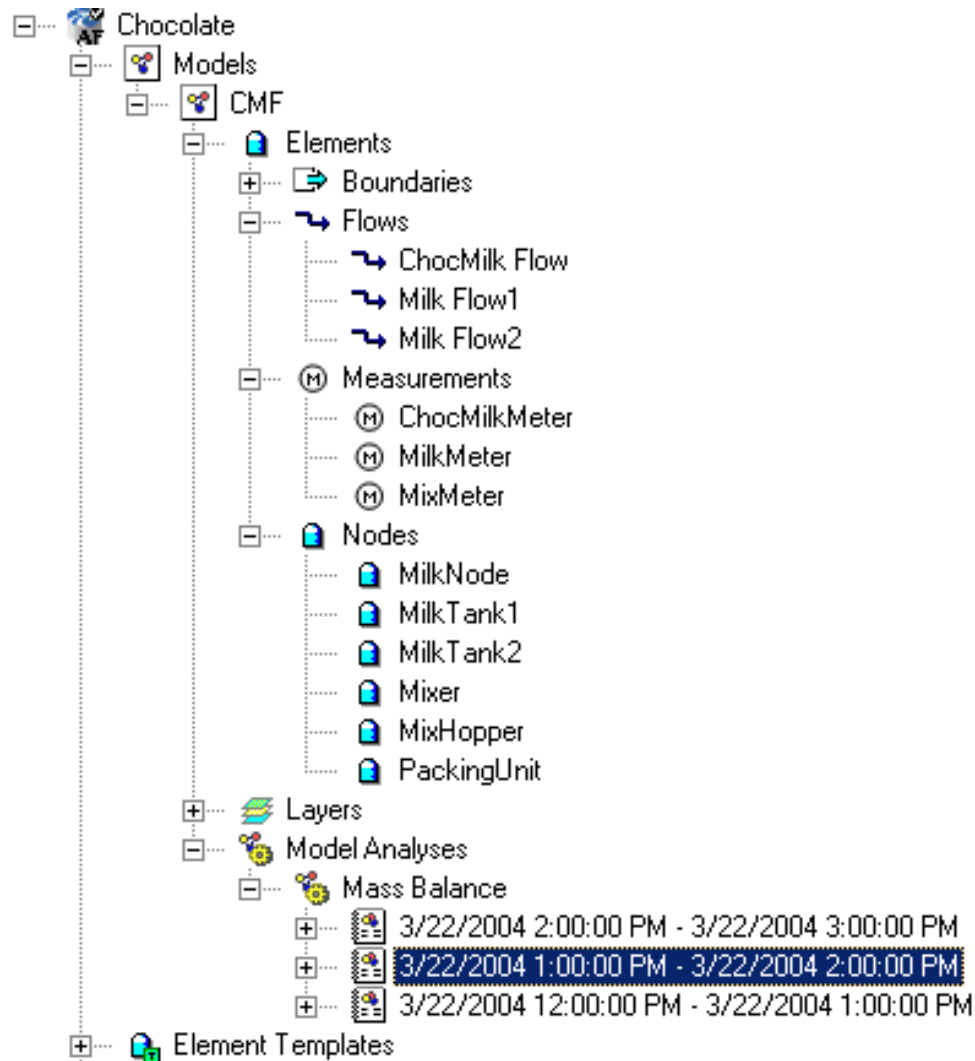


How does Sigmafine 4.0 do it?

- Measurement Accuracy
- Connectivity logic
- Balance
 - Reconciliation



Assign Context



General | Results | Adjustments | Log | Layers | Elements | C

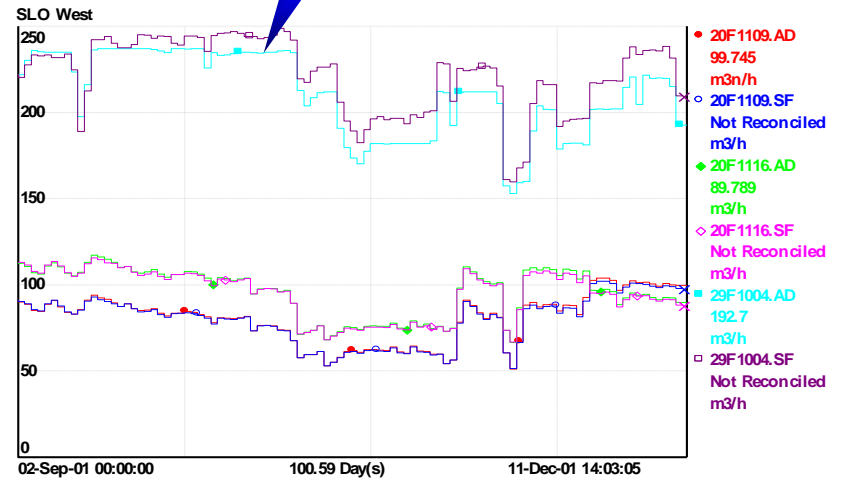
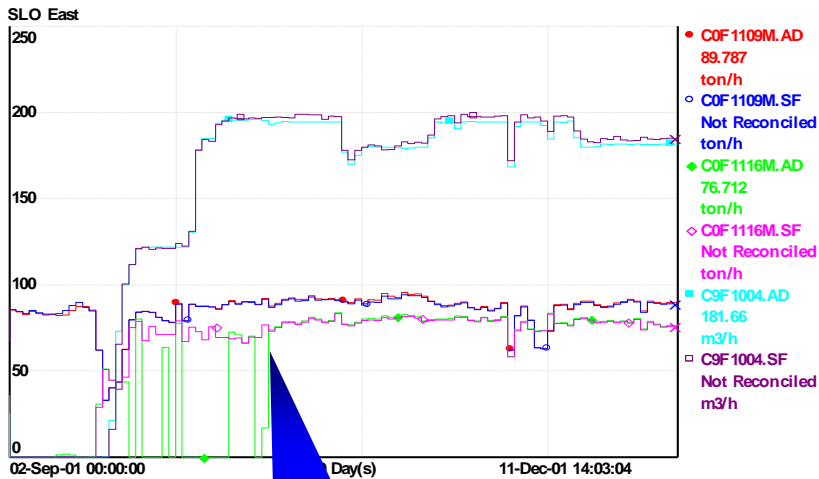
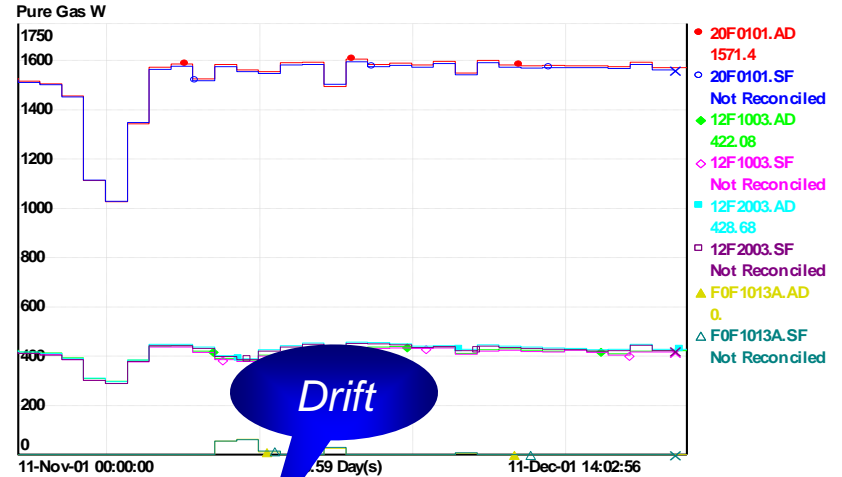
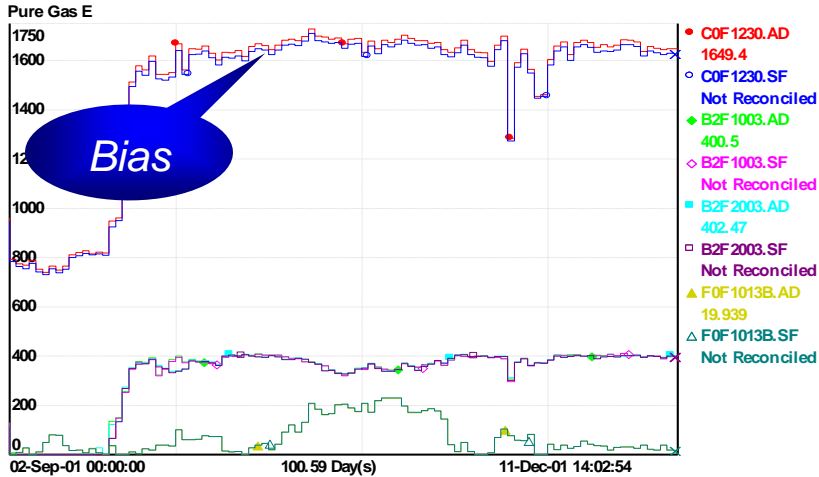
Start: 3/22/2004 1:00:00 PM

Description:

Previous case: Case 3/22/2004 12:00:00 PM - 3/22/2004 1:

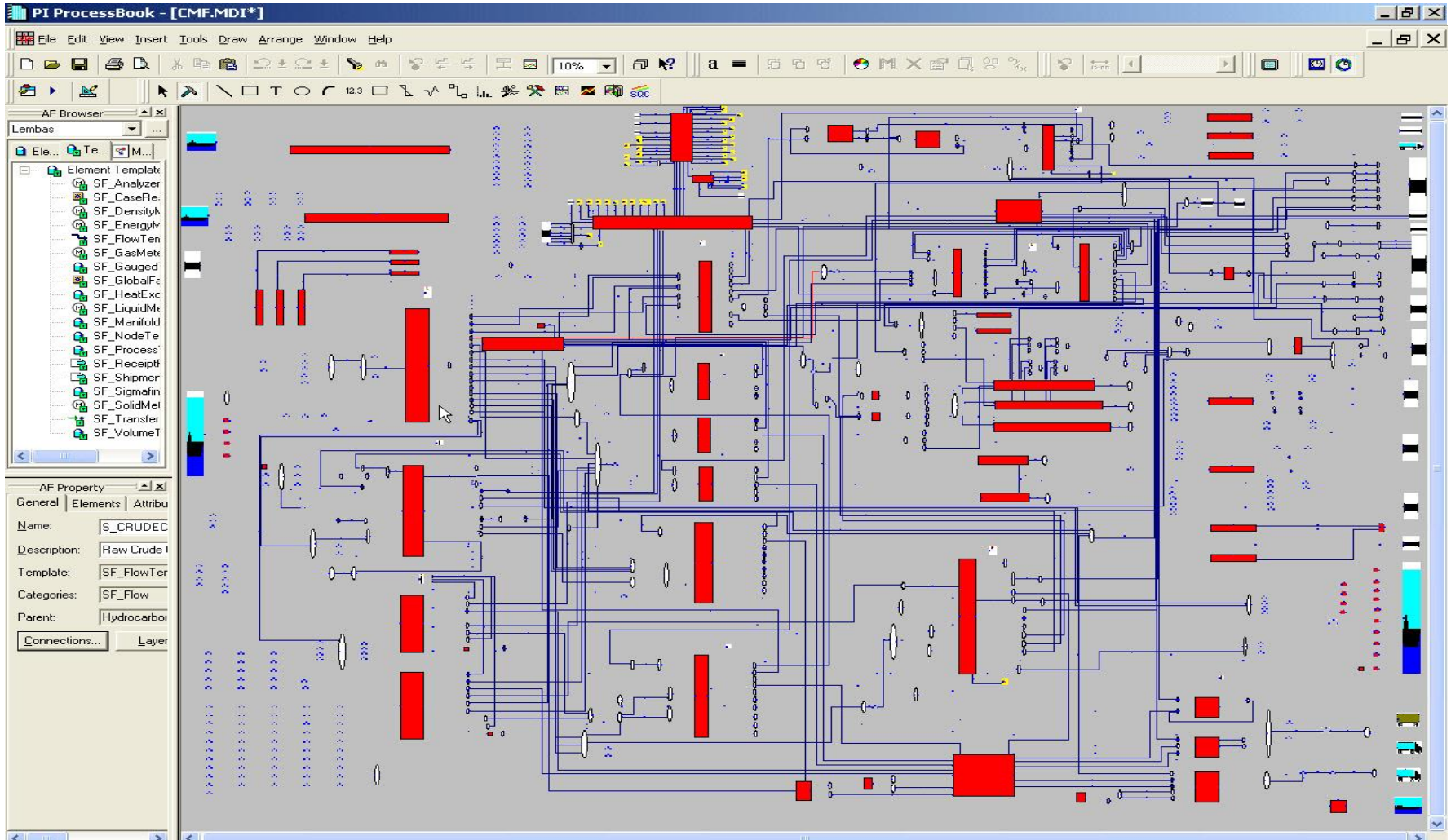
Collect Elements	Complete: 4/6/2004 3:02:54 PM
Collect Transfers	Complete: 4/6/2004 4:50:13 PM
Collect Inputs	Complete: 4/8/2004 1:56:16 PM
Validate	Pending
Run	Complete: 4/8/2004 1:56:20 PM
Check In	Complete: 4/8/2004 1:56:22 PM
Publish	Pending

Analyze



Meter Error

Analyze/Visualize



Analyze/Visualize

Microsoft Excel - Book1

File Edit View Insert Format Tools Data Window PI PI-SMT Help

100% Arial

C9 = (=AFGetAttributes("localhost","Chocolate","CMF","Mass Balance",\$A\$7,\$A\$8,C9,"MeasuredMass","Single","ton", 1))

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	localhost												
2	Chocolate												
3	CMF												
4	Mass Balance												
6	Case												
7	3/22/2004 1:00:00 PM												
8	3/22/2004 2:00:00 PM												
9			Element	Mass									
10			ChocMilkMeter	5.846633									
11			MilkMeter	4.009097									
12			MixMeter	1.219298									
13			MilkTank1	4.004									
14			MilkTank2	2.485373									
15			Mixer	0.092358									
16			MixHopper	2.243786									
17			PackingUnit	35.56992									

Get Attribute Values

PI System: localhost Database: Chocolate

Model: CMF Model Analysis: Mass Balance

Starting Case: \$A\$7 Ending Case: \$A\$8

Element: C9:C11

Single Case - Multiple Attributes Multiple Cases - Single Attribute

Available Attributes and UOMs:

- CompensatedVolume - bbl
- CorrectedMass - lb
- CorrectedMassTolerance - lb
- CorrectedVolume - US gal
- CorrectedVolumeTolerance - US gal
- CorrectedWeight - lb
- CostCenter - N/A
- Density - lb/ft3
- InferredStatus - N/A
- ManualAdjustmentFlag - N/A

Selected Attributes and Selected UOMs:

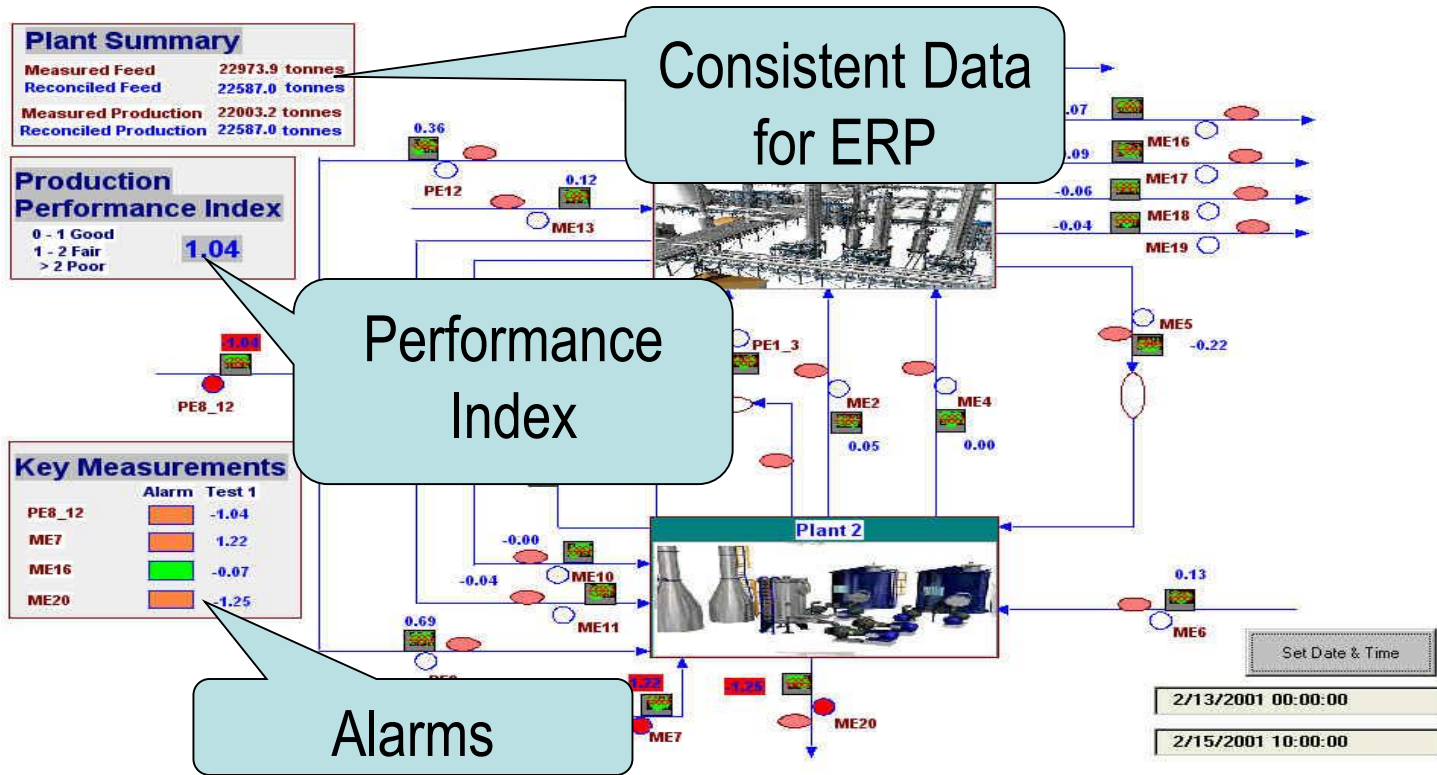
- MeasuredMass - ton

Show Case Time Show Attribute Name Show UOM

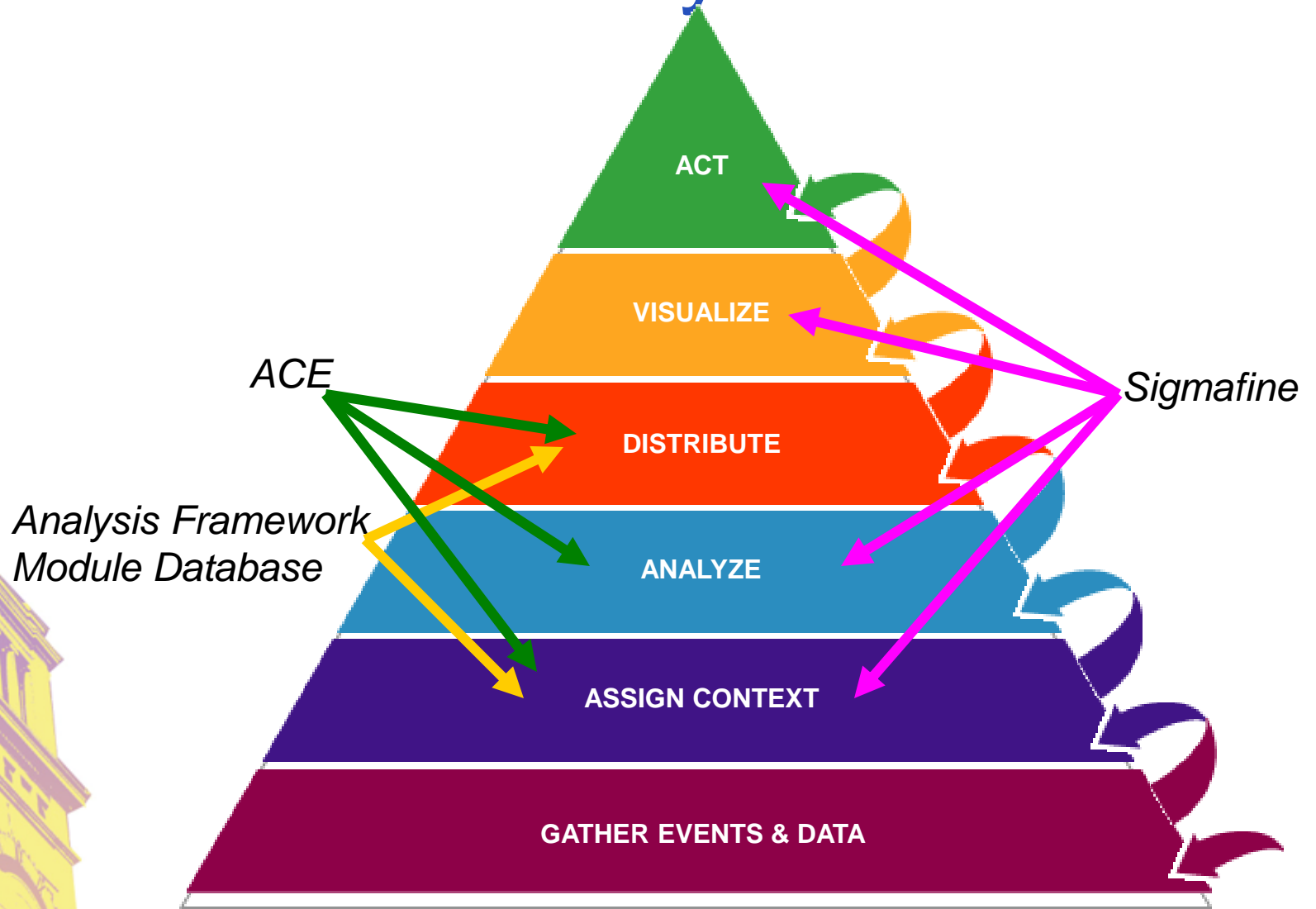
Output: \$D\$9 Row Column List of UOMs: ton

OK Cancel Apply

Sigmafine – Act



RtPM Pyramid



Yearly Puzzle

6R	4R	3D	2D	2L	2L	2D
2D	1U	4R	4D	3L	2L	2L
1U	1R	3R	3L	2U	E	2D
1R	1U	3R	1D	2D	1L	3L
4U	1L	3U	2D	2U	3U	2D
1D	1U	1D	3L	2R	3L	2U
1R	1U	2U	2R	2U	1U	2L

End on the square **E**

Each square must be stepped on only once

For example, 1R means move 1 square to the right

Which square must you start at?