Asset Based Analytics

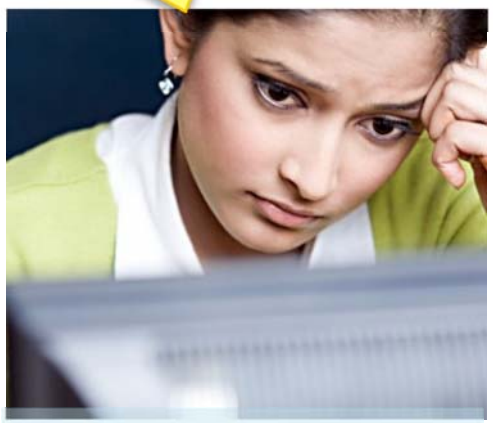
Presented by **Dineshkumar Ambalavanan, Customer Support Engineer**

Information Challenges

*"I'm **maintaining** a lot of **different data** and event databases. **Integration** is always a **big project**."*

Information Tech

*"This issue is **recursive**, but there is **so much data**, it will take another week to find all related data to **compare occurrences**."*



Engineer

*"Every site has the **same process**, but the **instrumentation is different**. Collaboration is nearly impossible."*

Manager

*"We're **losing money**. We need to make an informed decision quickly, but only raw data is available. We **need information and KPIs**."*

Executive

The PI Server Package

- PI Event Frames
- PI Asset Framework
- PI Data Archive
- PI Interfaces for Health Monitoring
- PI Notifications
- Asset Based Analytics

- Cloud Computing (SaaS)
- Windows Integrated Security (Windows Server Active Directory)
- High Availability (HA)
- 64-bits Architecture
- Virtualization (Microsoft Hyper-V, CITRIX, vmware)

PI Asset Framework (PI AF)

Hierarchical database

Allows for **consistent** integration and organization of data coming from **different systems**

Enables the PI System to:

- Define your assets in a **scalable**, secure and **extensible** database
- Aggregate **time-series and relational data**
- Integrate with **analysis** and **notification** tools

Asset Based Analytics (AF 2.5)

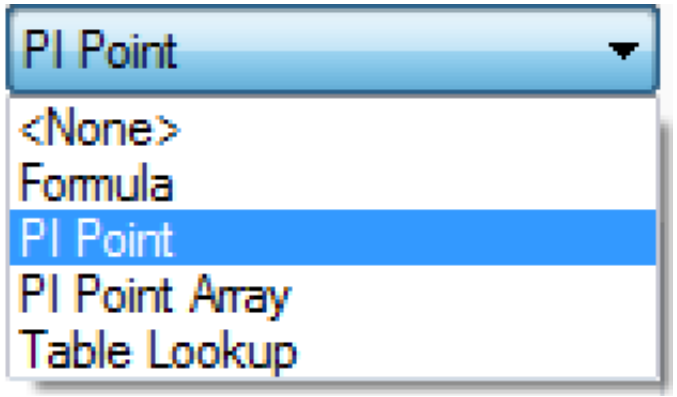
Formula Data Reference

Basic **mathematical operators** and functions

PI Point Data Reference

Summary calculations (total, average, etc.)

Pointer to **tag based analytics** (Performance Equations, Totalizer and PI ACE tags)



Asset Based Analytics (Today)

Will evolve to enable **new calculation types**

- **Expression** calculations “Performance Equations”
- **Rollup** calculations
- Automatic **Event Frame Generation**

Released: Q1 2014

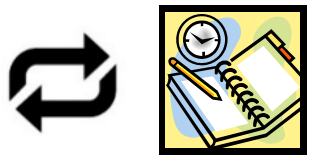
Asset Based Analytics – Expression and Rollup

Extruding Process

Boiler Efficiency = AVG(B1..Bn)

Boiler1

- Flow Out
- Fuel Flow Rate
- Efficiency = (Flow Out / Fuel Flow Rate * 3.14)



Boiler Template

Boiler2

- Flow Out
- Fuel Flow Rate
- Efficiency

Boiler3

- Flow Out
- Fuel Flow Rate
- Efficiency

Asset Based Analytics – Event Frame Generation

|Efficiency

|Fuel Flow Rate

|Flow Out

myEF

|Efficienc
y

Efficiency = (Flow Out / Fuel Flow Rate * 3.14)

myEF.Start = (Efficiency < LIMIT)

myEF.End = (Efficiency > LIMIT) AND (Fuel Flow Rate > 25)

Asset Based Analytics

PE, Rollup, Event Frame Generation

Attributes as **inputs** and **outputs**

Support for **calculation dependencies**

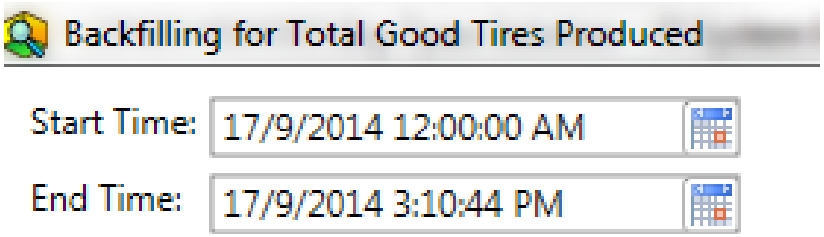
Preview and test using historical data

On-demand or scheduled calculations

Archiving of the results

Manual **backfill**

Name	Expression
A	'Attribute1'*10
B	A+'Attribute2'
C	B-'Attribute3'



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Assets, Analytics, and Events

Shorten the Time to Insight

*"We've turned our site's process data into **valuable information** and powered our corporate reporting and BI initiatives."*

Information Tech

*"The PI System enables us to **spend our time analyzing the data** instead of retrieving and manipulating the data."*

Engineer

*"My employees now have **the right information** to make decisions. We are **sharing best practices** across sites now that we're **talking the same language**."*

Manager

*"We are more efficient, our assets are more reliable, and we are producing more with less. **The PI System impacts my bottom line**."*

Executive

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