



Batch and Event Frames

Presented by **David Casazza, David Spiese and
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2017 – The **Green Light** year for Batch Customers

2011 Asset Framework &
Event Frames

Batch Interfaces
to Event Frames **2012**

PI Datalink
2014

PI Batch Migration to
Event Frames

PI Integrator for
Business Analytics
2016
PI Vision

Pinned Events

2015
PI Coresight
Overlay Trends

RtReports 4.0

PI System Connector
2017



Event Frames

Event Frames automatically **bookmarks** PI System time-series data so that it's more meaningful to engineers and business users, **AND** easier for them to find, analyze, and report on.

Batch
Downtime
Excursion



Related Data!

Event Attribute	Value
Name	Ex 20121215-0002
Start	15-Dec-2012 10:35:02
End	15-Dec-2012 10:47:26
Duration	12 min, 24 sec
Asset	Boiler-352
Excursion Type	High Violation
Fuel Gas Flow.Avg	37.12 k sft3/h
Fuel.Start	823.48 k sft3/ton
myPIKPI.Max	47.19 bbl/d

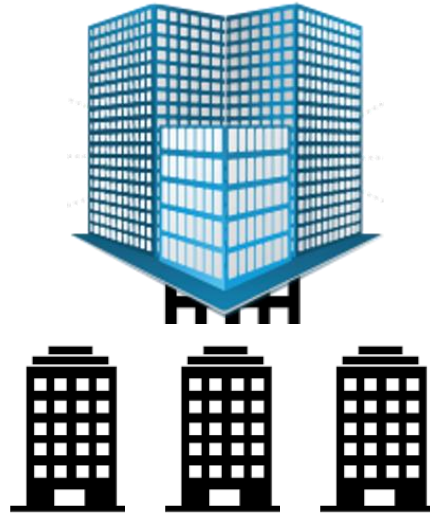
Why Event Frames for Batch Customers?



Why Event Frames for Batch Customers?



S88/S95 Downtimes/
Excursions

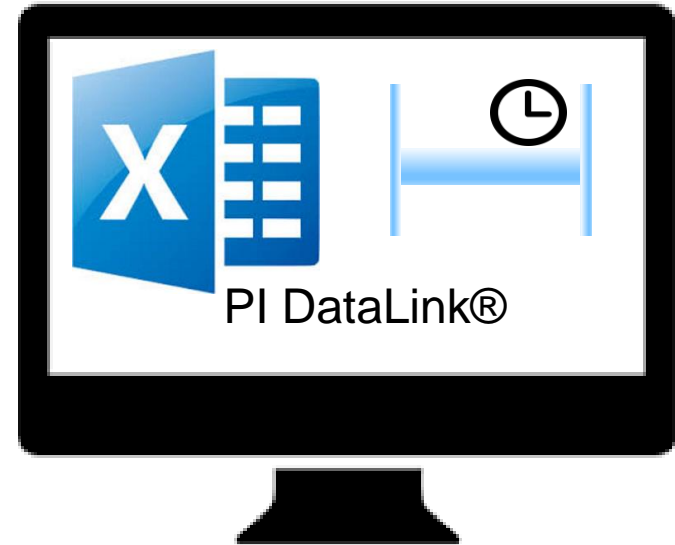


Plant to Enterprise

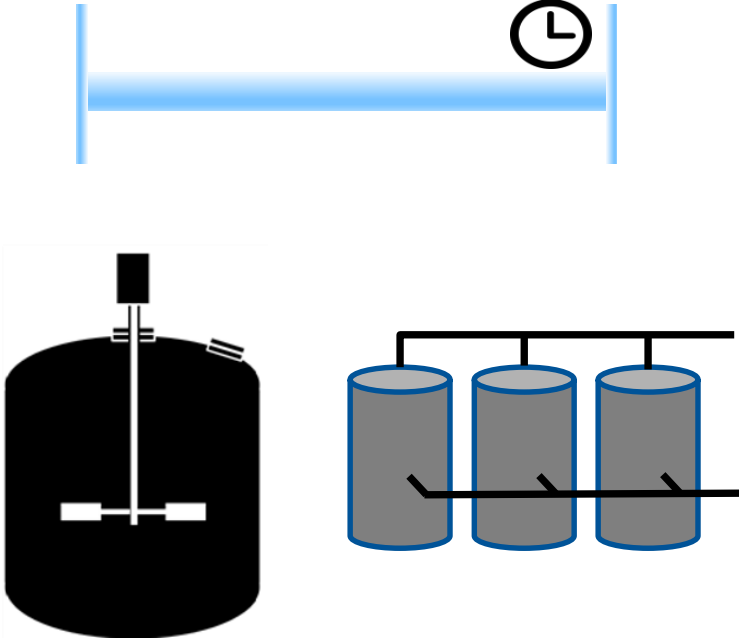
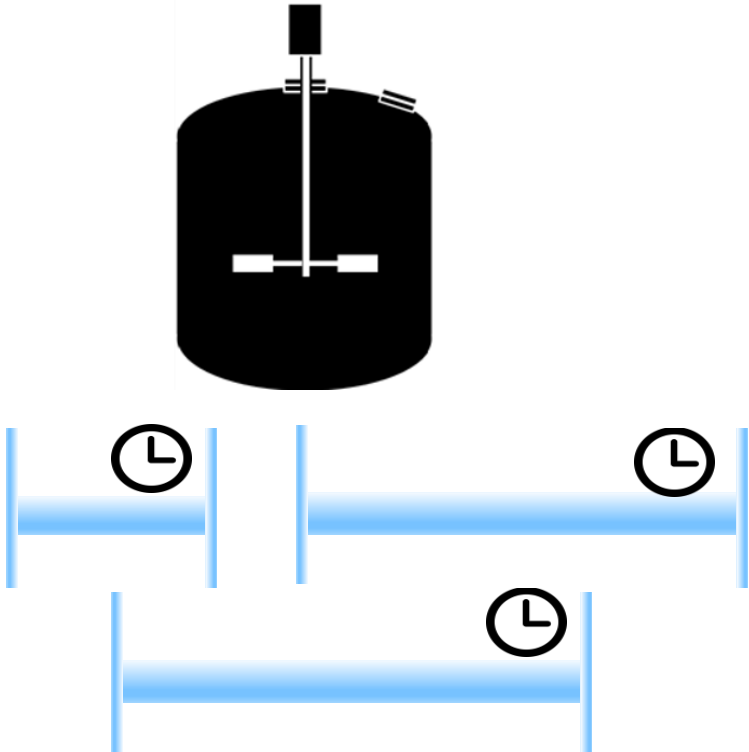


future proof

Advantages of Event Frames over PI Batch




Advantages of Event Frames over PI Batch



Advantages of Event Frames over PI Batch

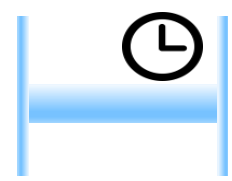


AF high availability

$10^7 +$ 



Advantages Summary



Event Frames

Modern web
visualization

Move forward
to better
capabilities

Scale to the
Enterprise

Focus across
the
Enterprise

Event Frames and Batch Interfaces Use S88 Model

- Physical Equipment Model

- [AREA] My House

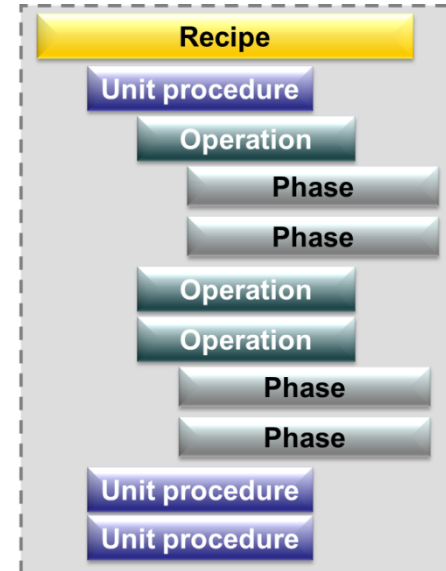
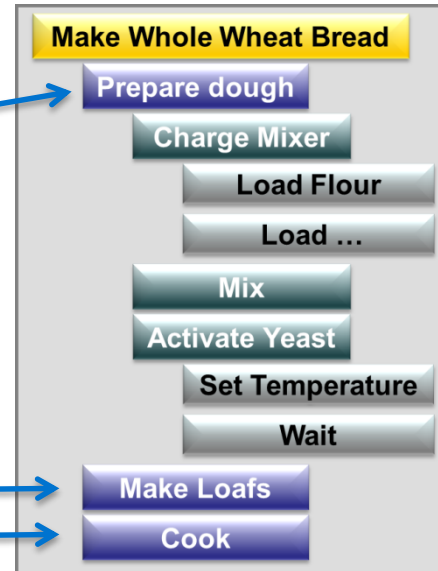
- [PROCESS CELL] Kitchen

- [UNIT] Mixer

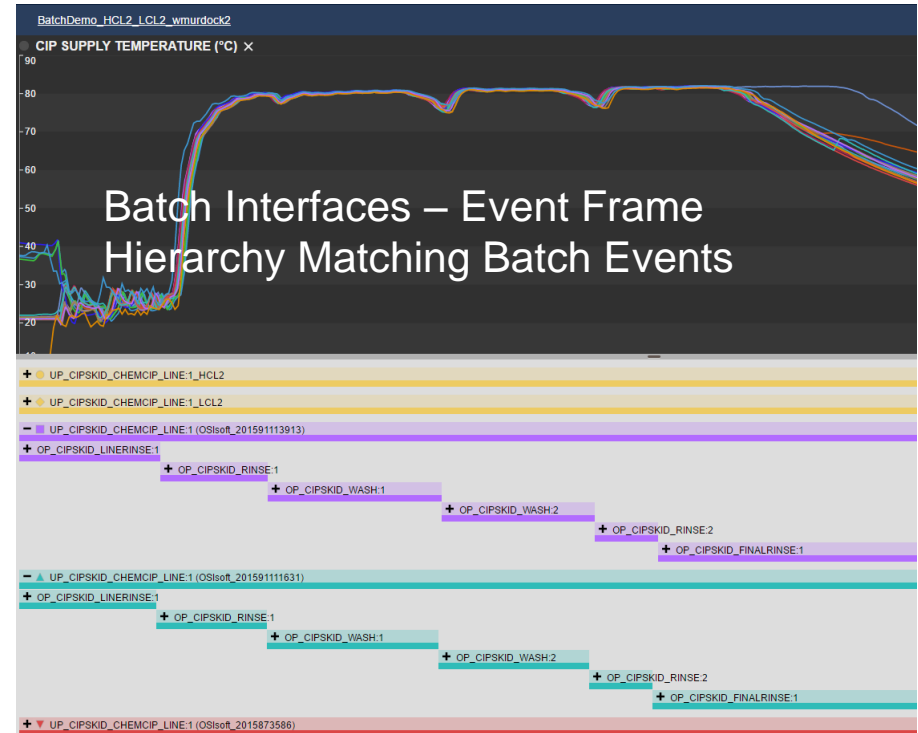
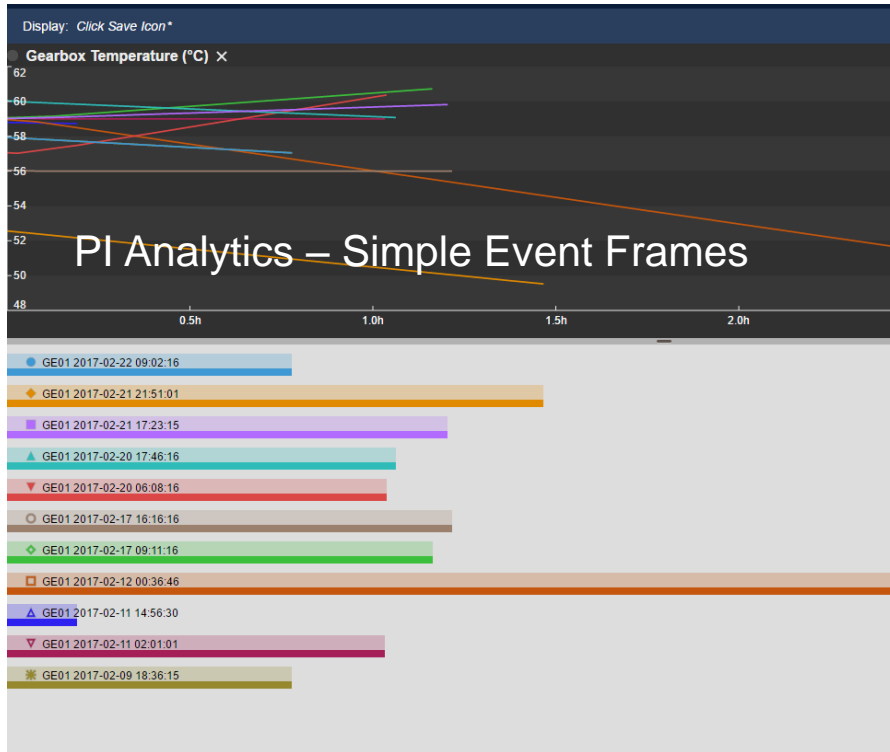
- [UNIT] Pan

- [UNIT] Oven

- Procedural Model (Recipe)



PI Analytics vs. Batch Interfaces



Batch Visualization PI Vision features

Overlay Trends

- Compare parameters across batches
- Add/remove process parameters

- History review
- Evaluate process performance

Batch Visualization PI Vision features

Pinned Events

- Compare batches to reference
- Save reference batches in displays

- View process data and “ideal” data on same trends
- Investigate outliers
- Prepare for batch release

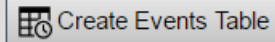
Batch Visualization PI Vision features

Greater
Searchability

- Compare batches across units
- Different batch templates
- Custom time scales

- Facilitate tech transfer
- View batches across life cycle
Development → scale-up → commercialization

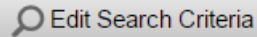
Events Table

A rectangular button with a light gray background and a dark gray border. On the left is a calendar icon, and to its right is the text "Create Events Table".

Create Events Table

Add an events summary to your display

- Batch events
- Alarms list

A rectangular button with a light gray background and a dark gray border. On the left is a magnifying glass icon, and to its right is the text "Edit Search Criteria".

Edit Search Criteria

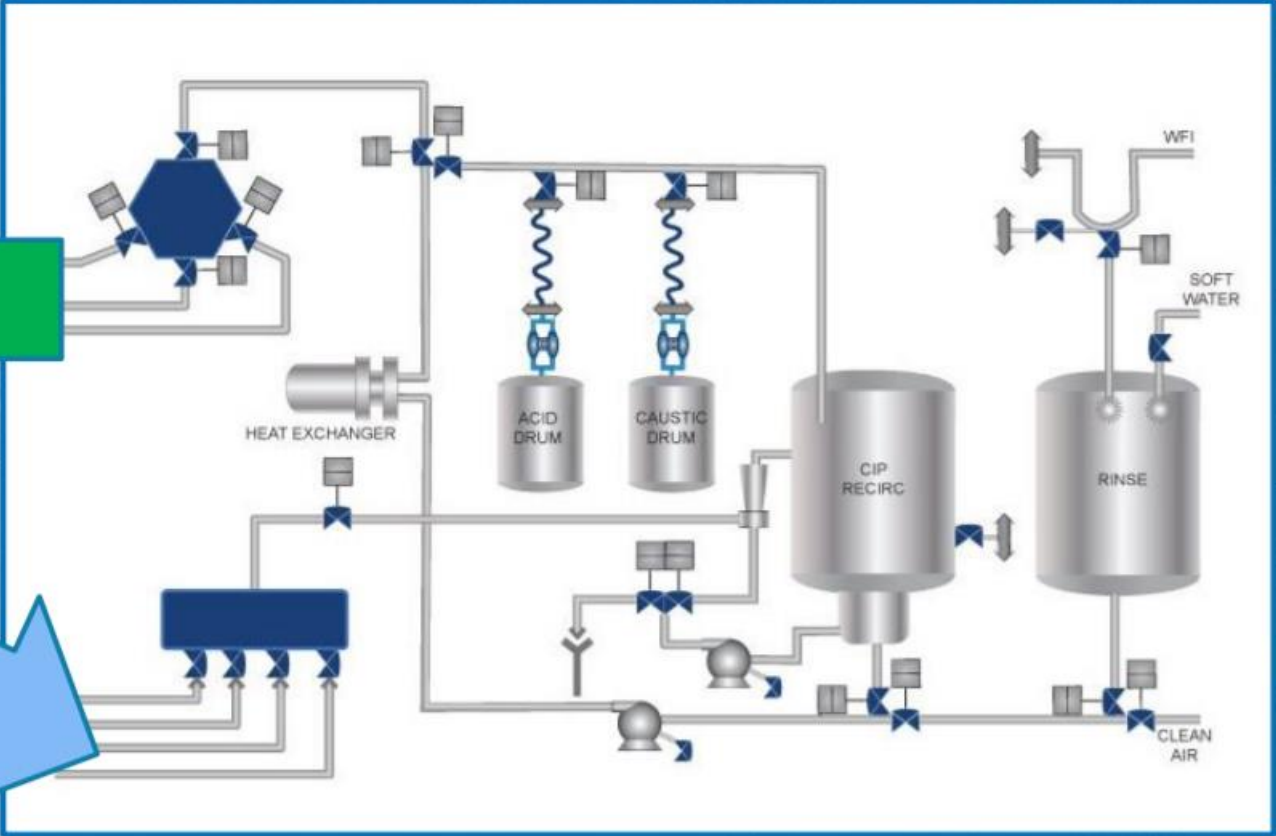
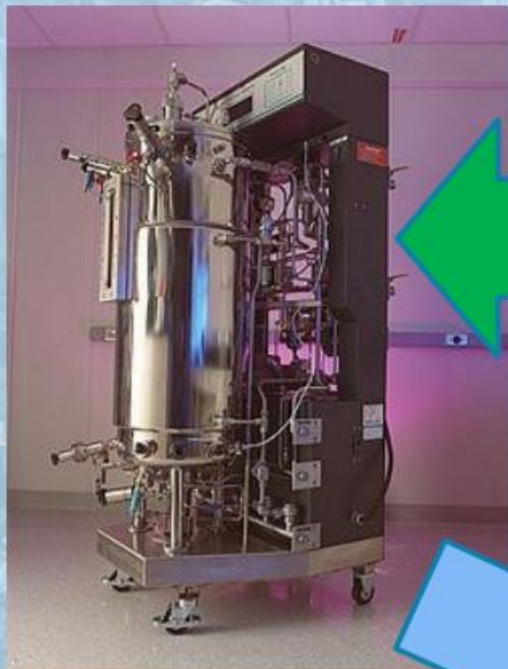
Customize

- Filter and order results
- Organize the table columns and order

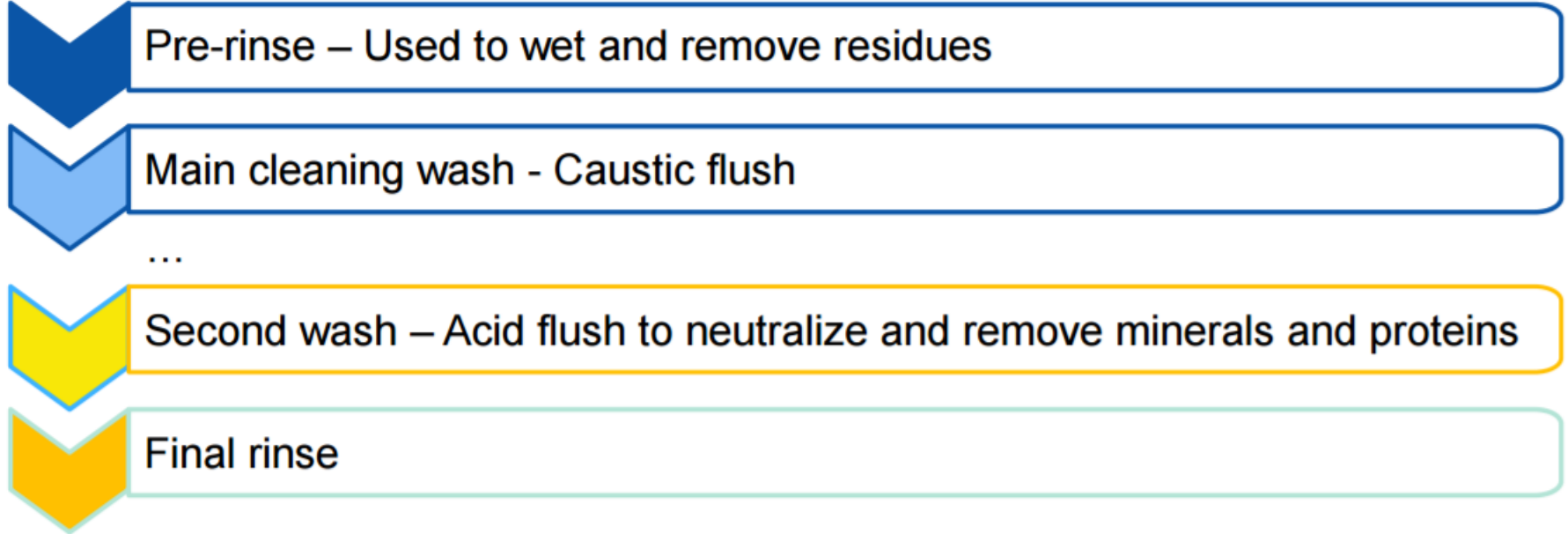


Demos

Clean in Place - CIP



CIP – Clean In Place Process



Improve Process Intelligence

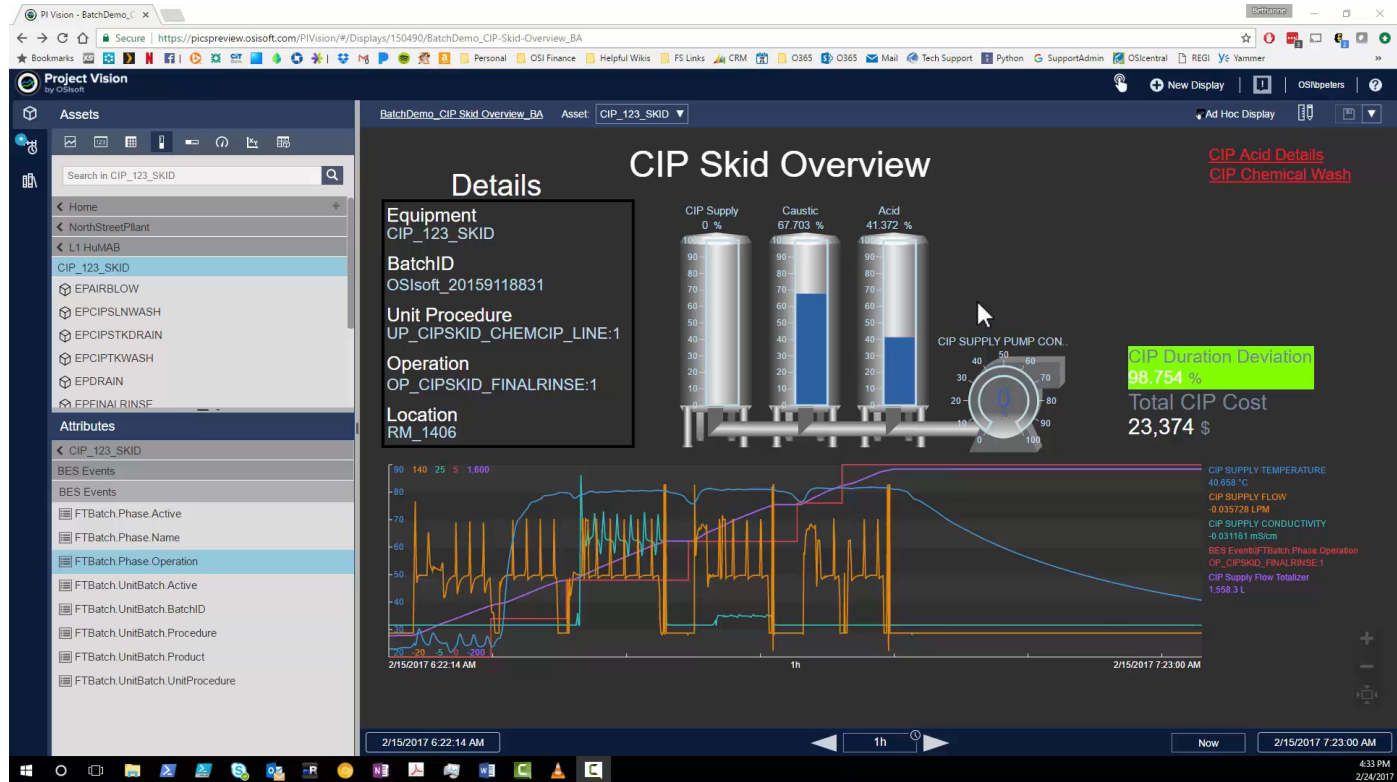
- CIP takes a large amount of chemical supply and energy
- Operators want to ensure protocols are followed with real time displays
- Process Engineers want to improve performance by comparing KPIs to ideal
- Executives want performance summary reports to monitor time and cost

Build a Display with Live Data



“I need to be able to see that the operation is following protocol.”

Demo: Building Display with Live Data



What did we demonstrate?

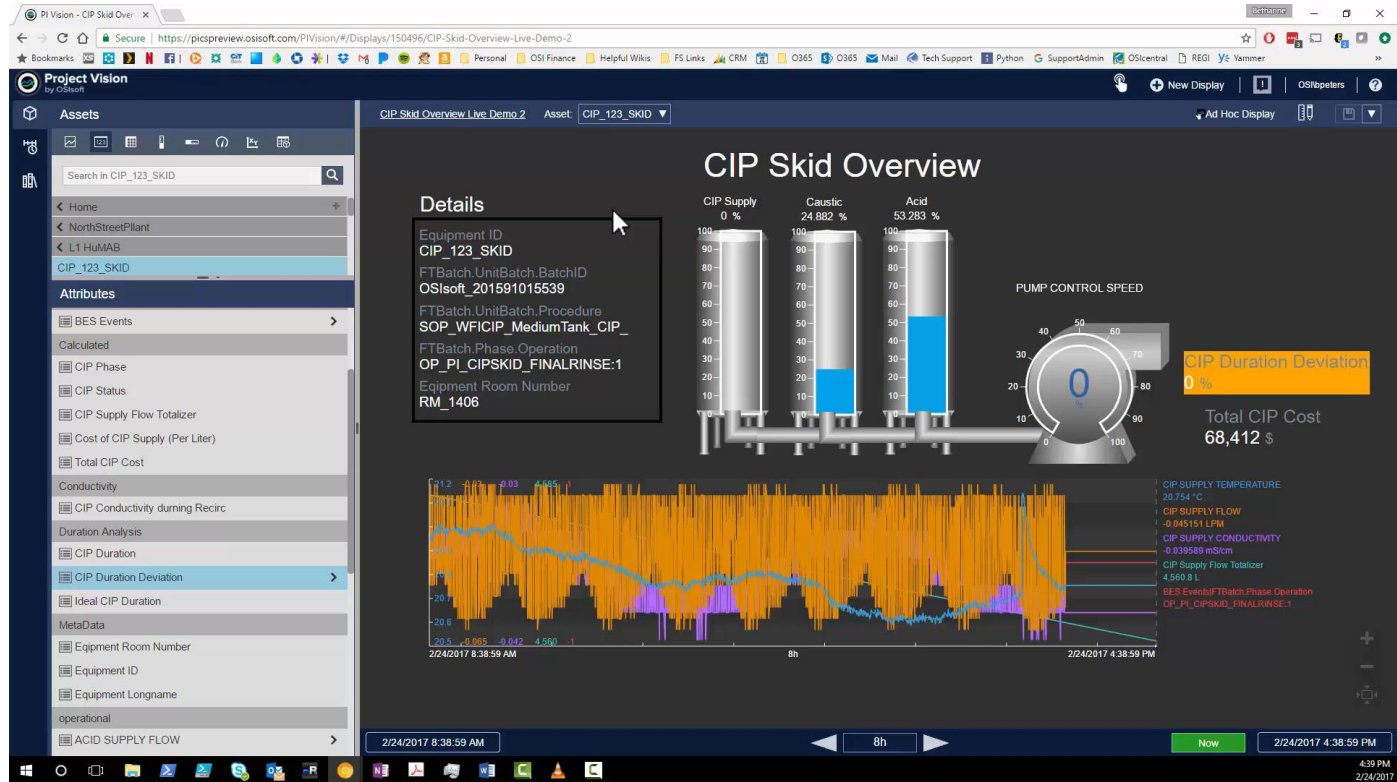
- Easy creation of real time display
- Monitor key parameters
- Show results for analytics for economic indicators (cost)
- Show results for analytics for deviations in duration

Applying Event Frame Context



“I need to see data from recent CIP events.”

Demo: Applying Event Frame Context

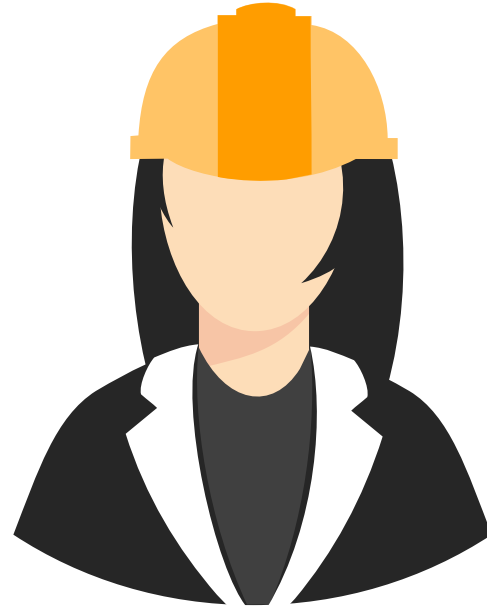


What did we demonstrate?

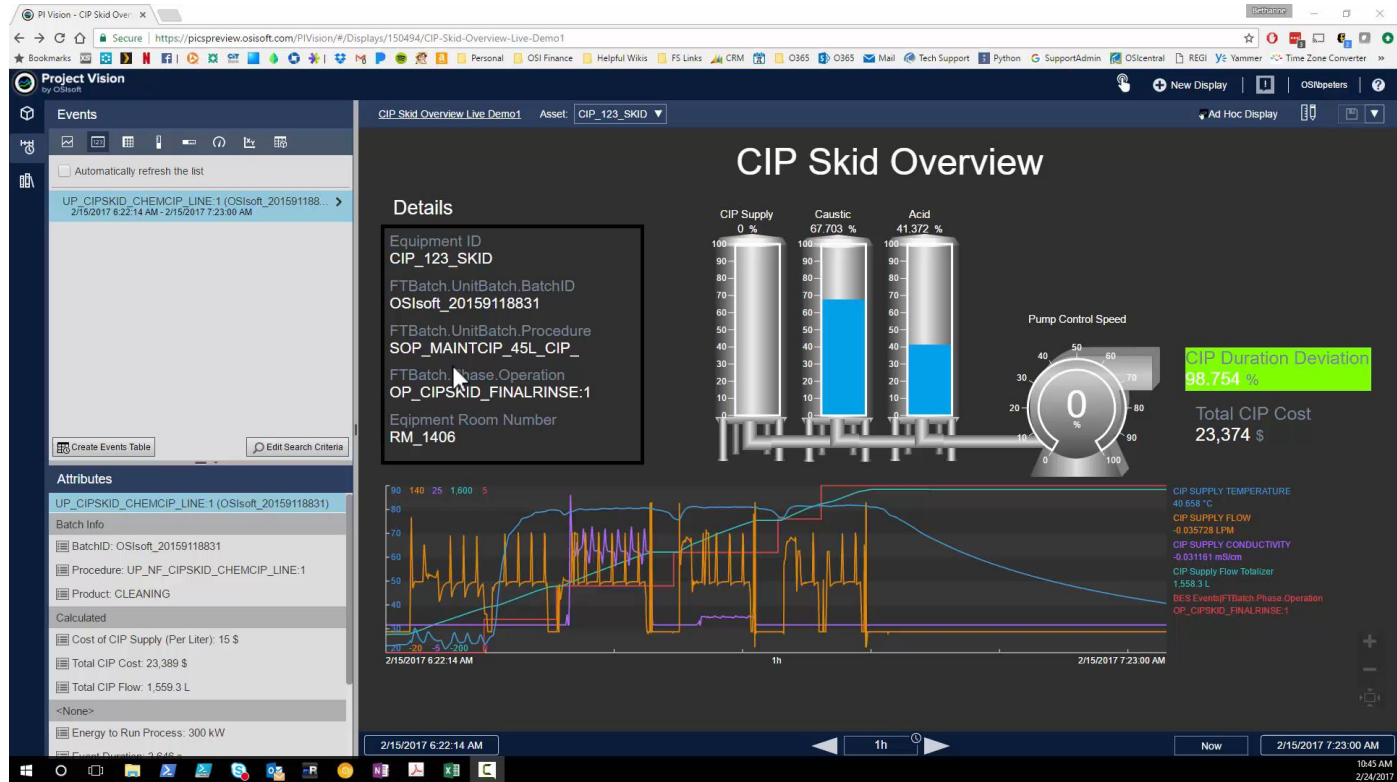
- See related events (batches) for an asset
- Create Events Table (Community Technology Preview)
 - Batch Events
 - Non-Batch Events (Alarms, Downtime, etc.)

Pinned Events for Quality Control

“I need to compare events to the ideal curve to report on quality control.”



Demo: Pinned Events for Quality Control

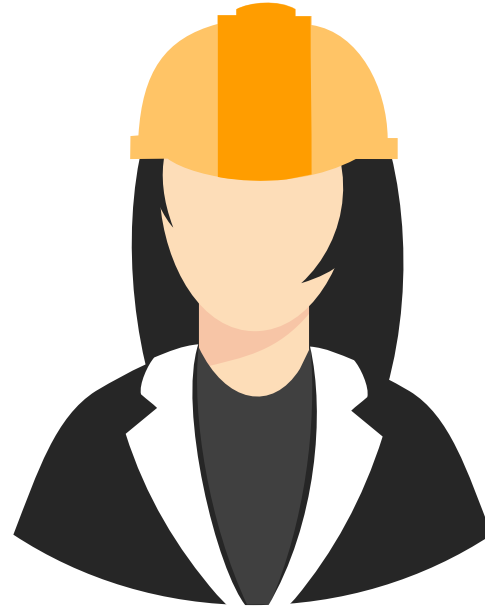


What did we demonstrate?

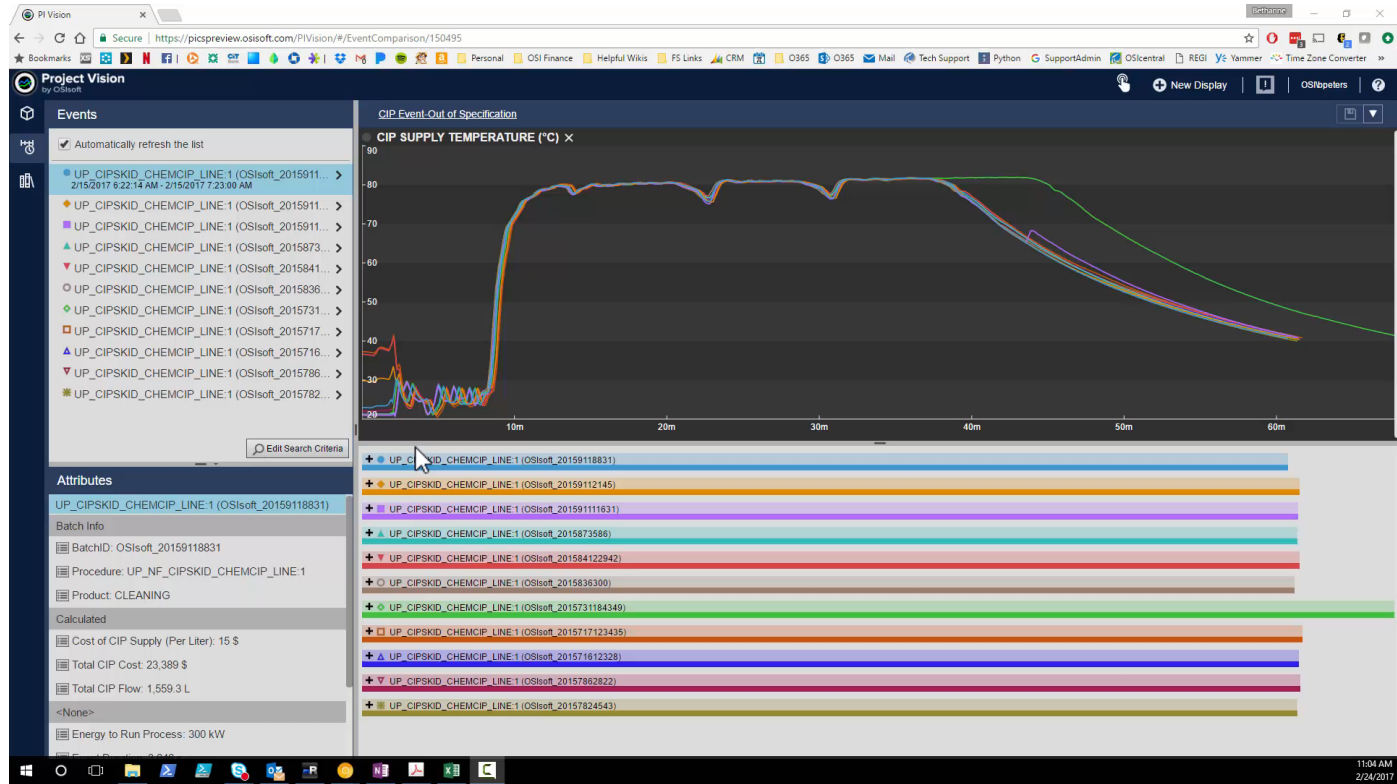
- Launch into event overlay comparison with easy parameter cleanup
- Pinned Events
 - View process data and ideal data on same trends
- Find and compare events
- Find extra long durations that show:
 - excess energy and materials costs
 - reduced OEE and turnaround

Statistical Process Control Curves

“I want to find opportunities to improve performance.”



Demo: Statistical Process Control Curves

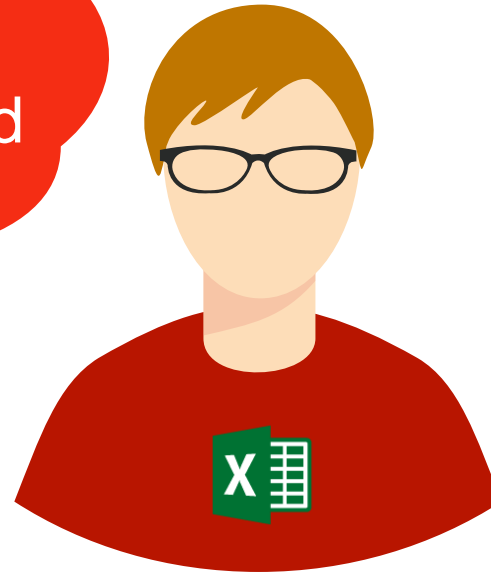


What did we demonstrate?

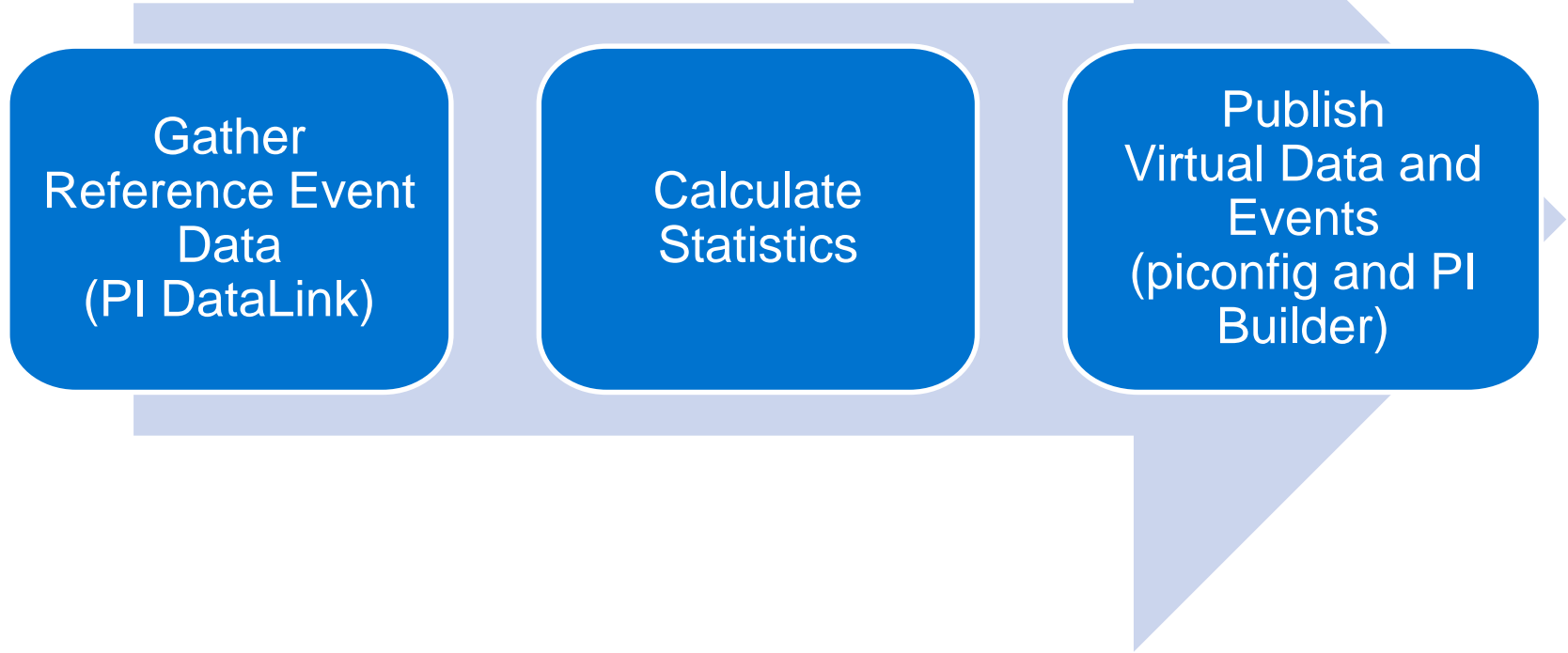
- Greater Searchability
 - View batches across life cycle
 - Find events related to multiple assets
- Pinned statistical data
- Compare events to statistical data
- Find KPIs that are deviating

Building Statistical Data

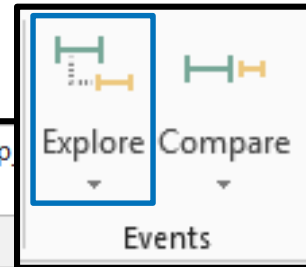
“I need to generate SPC comparison data for our end users.”



Building Statistical Data



Use PI DataLink to Query Events



A2 : X ✓ fx {=PIEFDat("\\dfpiaf\osipharmacip","12/21/2016","2/16/2017",0,"*chemcip

	A	B	C	
1				
2	Event name	Child 1	Start time	End time
3	UP_CIPSKID_CHEMCIP_LINE:1		21-Dec-16 13:20:39	21-Dec-16 14:22:32
4	UP_CIPSKID_CHEMCIP_LINE:1	OP_CIPSKID_LINERINSE:1	21-Dec-16 13:20:39	21-Dec-16 13:28:19
5	UP_CIPSKID_CHEMCIP_LINE:1	OP_CIPSKID_RINSE:1	21-Dec-16 13:28:19	21-Dec-16 13:34:09
6	UP_CIPSKID_CHEMCIP_LINE:1	OP_CIPSKID_WASH:1	21-Dec-16 13:34:09	21-Dec-16 13:43:23
7	UP_CIPSKID_CHEMCIP_LINE:1	OP_CIPSKID_WASH:2	21-Dec-16 13:43:23	21-Dec-16 13:51:33
8	UP_CIPSKID_CHEMCIP_LINE:1	OP_CIPSKID_RINSE:2	21-Dec-16 13:51:33	21-Dec-16 13:54:56
9	UP_CIPSKID_CHEMCIP_LINE:1	OP_CIPSKID_FINALRINSE:1	21-Dec-16 13:54:56	21-Dec-16 14:22:32
10	UP_CIPSKID_CHEMCIP_LINE:1		21-Dec-16 13:28:32	21-Dec-16 14:29:54
11	UP_CIPSKID_CHEMCIP_LINE:1	OP_CIPSKID_LINERINSE:1	21-Dec	49
12	UP_CIPSKID_CHEMCIP_LINE:1	OP_CIPSKID_RINSE:1	21-Dec	39
13	UP_CIPSKID_CHEMCIP_LINE:1	OP_CIPSKID_WASH:1	21-Dec	52
14	UP_CIPSKID_CHEMCIP_LINE:1	OP_CIPSKID_WASH:2	21-Dec-16 13:50:52	21-Dec-16 13:58:57

Reference Events

Use PI DataLink to Query PI Point Data

Compressed Data ▾
Sampled Data ▾
Timed Data
Multiple Value

\\dfpiserver1\CIP_124_SKID_TI031.pv	\\dfpiserver1\CIP_123_SKID_TI031.pv	\\dfpiserver1\CIP_123_SKID
21-Dec-2016 13:20:39	21-Dec-2016 13:28:32	
21-Dec-2016 14:22:32	21-Dec-2016 14:29:54	
CIP_124_SKID	CIP_123_SKID	CIP_123_SKID
10s	10s	10s
	20.83270073	21.29899406
	20.83155823	21.29720879
	20.83041382	21.29542542
	20.82927132	21.29364014
	20.82812691	21.29185486
	20.8269825	21.29319382
	20.82584	21.32263947
	20.82798386	21.32263756
	20.83779716	21.333
	20.84118271	21.3261
	20.83813667	21.33736038

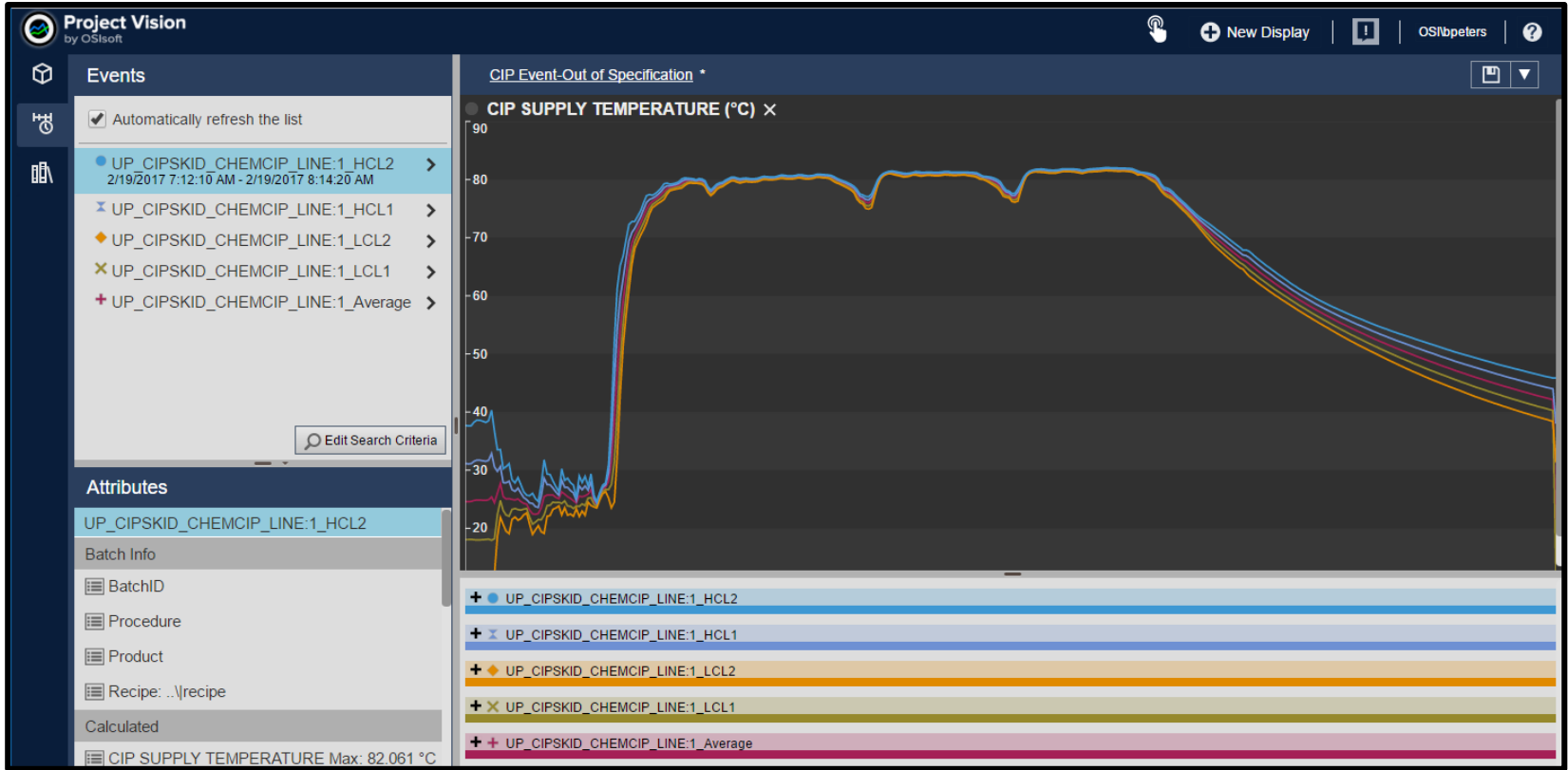
Reference Event Data

Calculate Average, Standard Deviation and Control Limits`

Average 1	StDev 1	LCL1 1	LCL2 1	HCL1 1	HCL2 1
24.65470	6.66893	17.98577	11.31684	31.32363	37.99257
24.63519	6.62944	18.00576	11.37632	31.26463	37.89407
24.61578	6.59298	18.02280	11.42982	31.20875	37.80173
24.59559	6.55146	18.04413	11.49267	31.14705	37.69851
24.57758	6.51208	18.06550	11.55342	31.08966	37.60174
24.60024	6.51406	18.08618	11.57211	31.11430	37.62837
24.76740	6.74148	18.02592	11.28444	31.50887	38.25035
24.85739	6.87830	17.97909	11.10080	31.73568	38.61398
24.85345	6.85885	17.99460	11.13575	31.71230	38.57115
24.81738	6.79393	18.02345	11.22952	31.61131	38.40525
24.78818	6.71369	18.07449	11.36080		
24.99267	6.79749	18.11695	11.39999		

Calculated Statistics

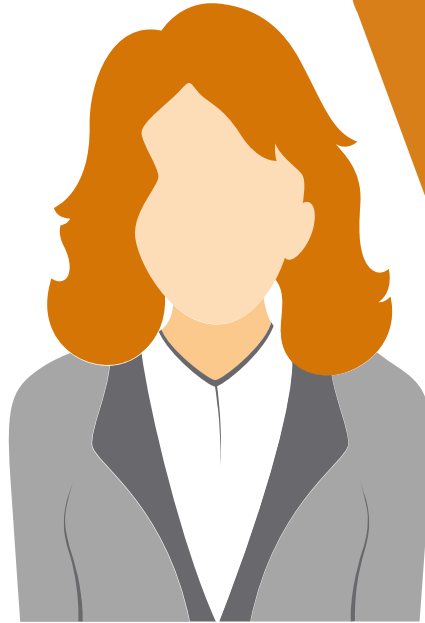
SPC Curves in PI Vision



What did we demonstrate?

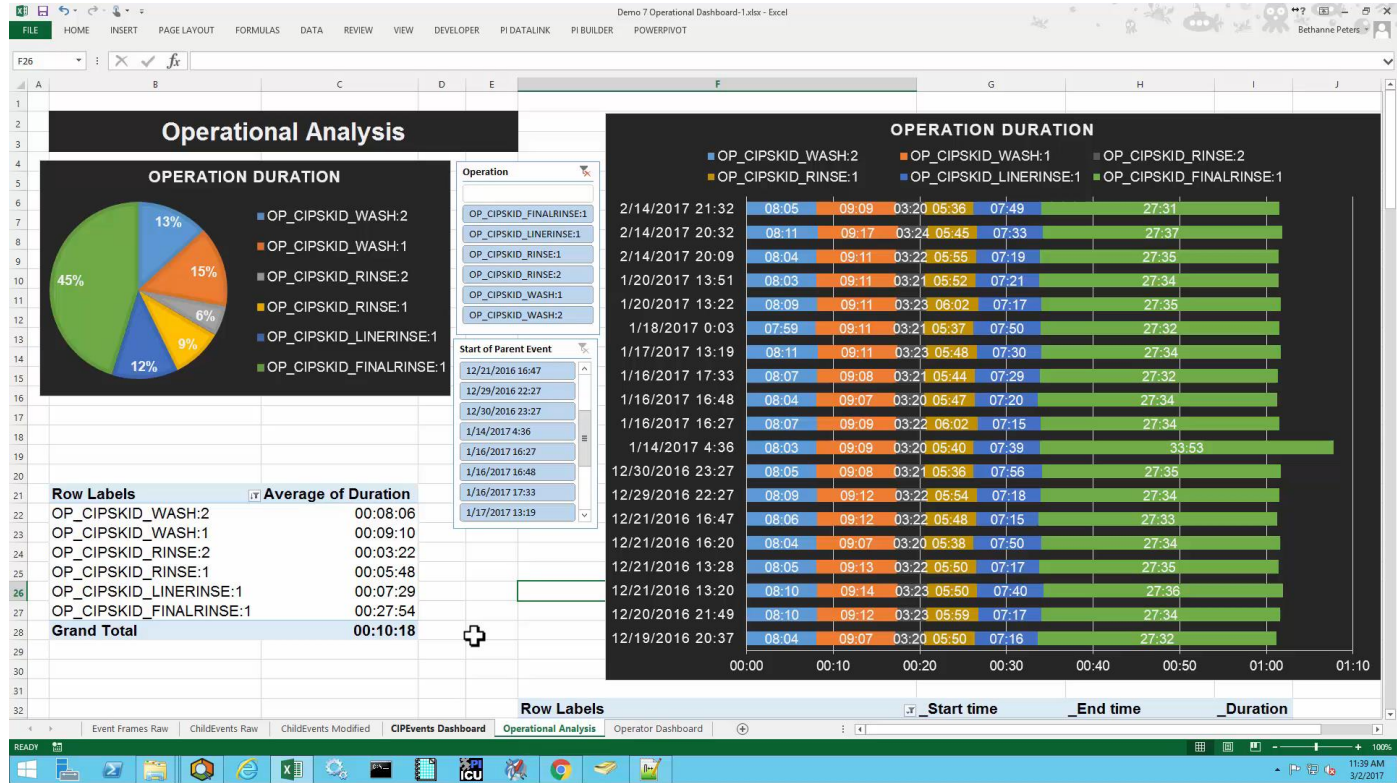
- Gathered reference event data using PI DataLink
- Use Excel to calculate statistics
- Write statistical data to PI Points and associate data with virtual units and Event Frames

Gain Management Insights using a Dashboard



“I want to see an overall view of the plant for the last few months.”

Use PI Datalink, Excel and PowerPivot to Create Dashboard



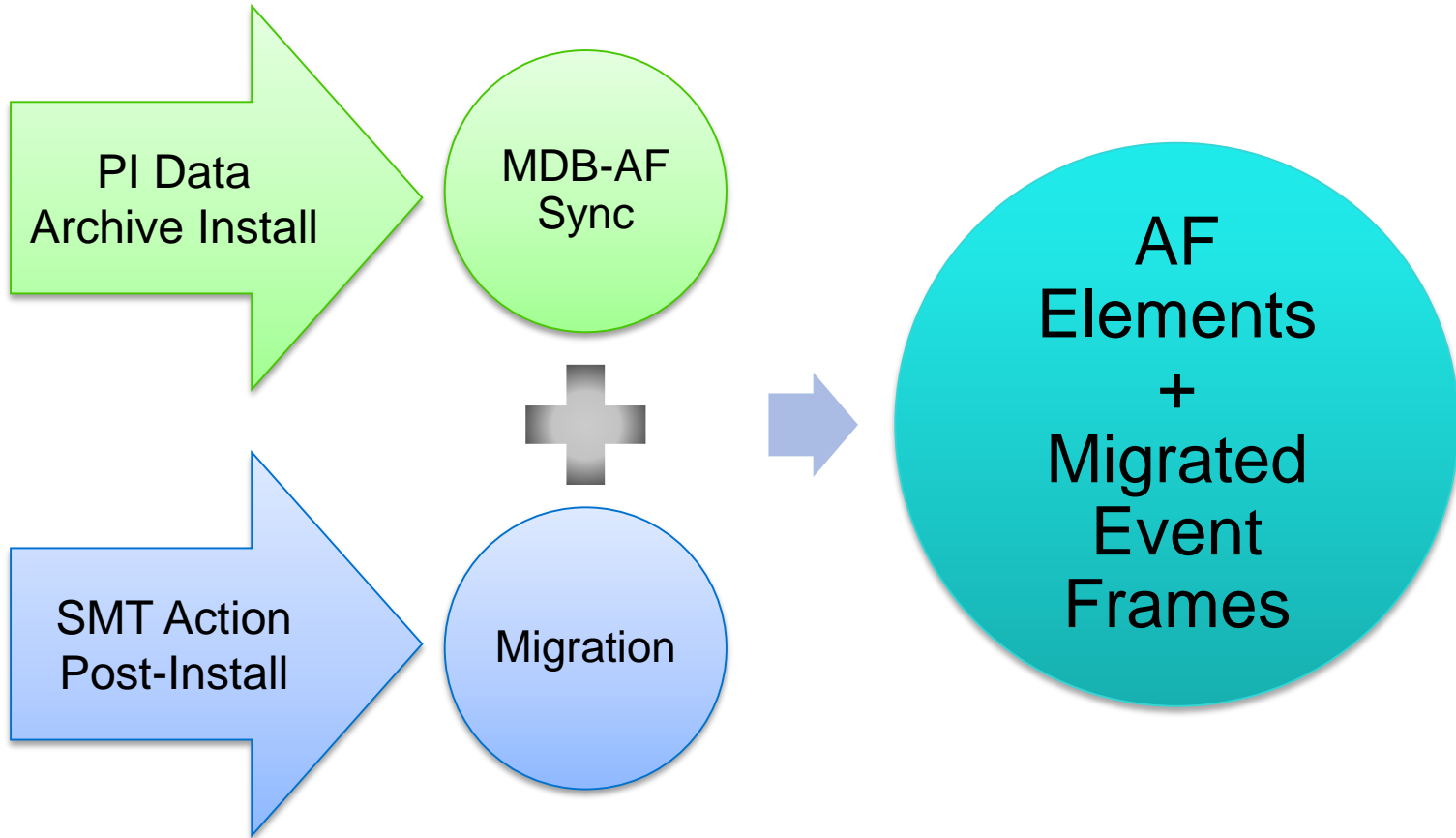
What did we demonstrate?

- Use PI Analytics for management insights
- Create management dashboard using Excel
 - material consumption
 - economic costs
- Use PowerPivot Slicers to focus



Batch to Event Frames Migration

Moving PI Batch to Event Frames – what's involved?



Moving PI Batch to Event Frames – what's involved?

PI Square FAQ for PI Batch Customers

 <http://bit.ly/2moqsni>

Batch to Event Frames Migration Presentation

 <http://bit.ly/2mw3k5N>



RtReports

RtReports and Event Frames

4.0!



When?

- Beta: May-June 2017
- Release: Target Q3 2017



What's Included?

- Printing – No more Word!
- Regional PI Server – Time Zones
- Event Frames - PI Batch sites
- Event Frames - New sites

RtReports and Event Frames

4.1!



When?

- Beta: Q4 2017
- Release: Target Q1 2018



What's Included?

- Direct AF Access via Journal Action
- Multiple AF Database Support

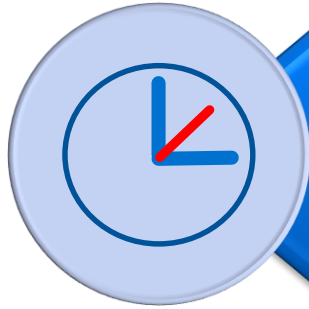
Should I wait for 4.1?

- 3.x and 4.0 reports will be forward-compatible!
- Reasons to move forward with 4.0:
 - Early EF adoption
 - Business Drivers requiring PI Integrator for Business Analytics

In Summary - No reason to wait!

RtReports and Event Frames

4.0!



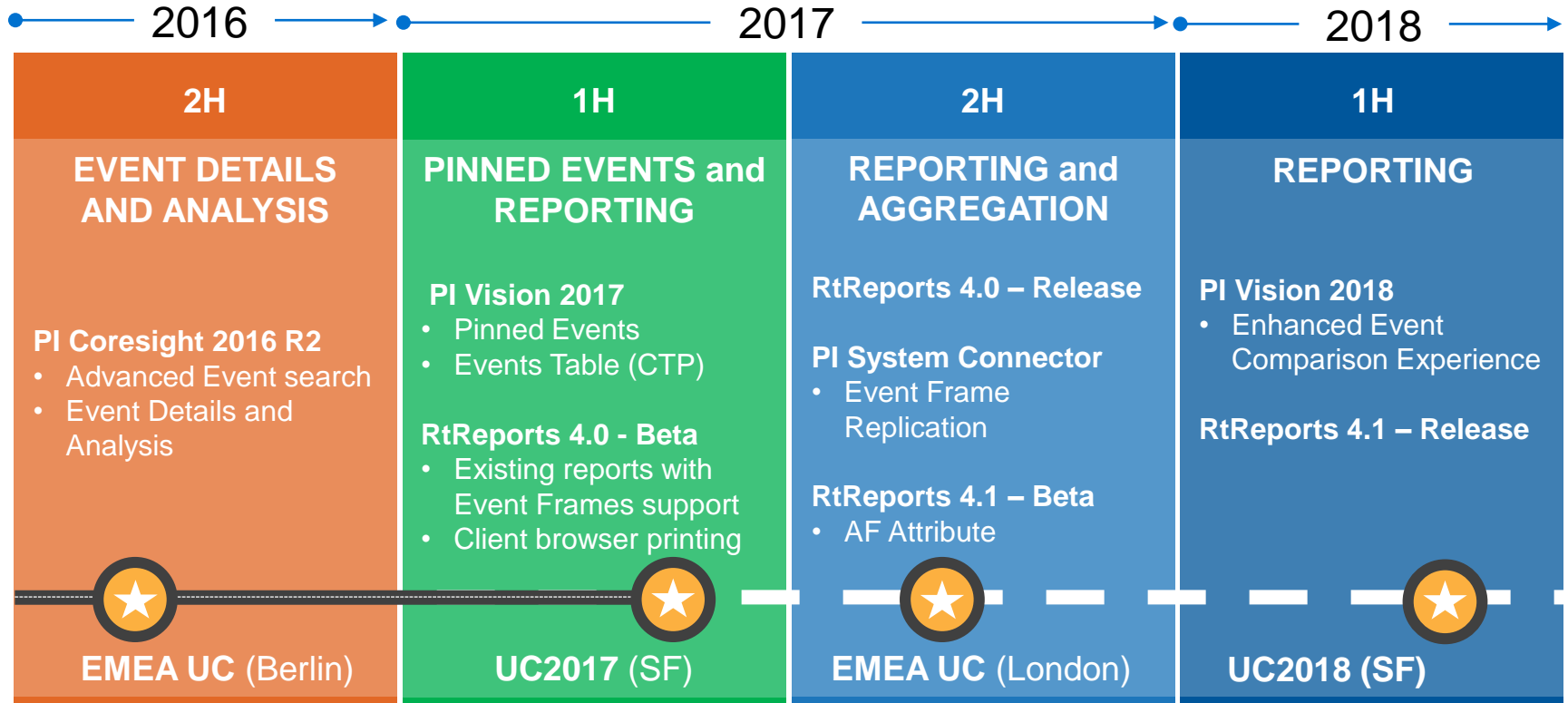
When?

- Beta: May-June 2017
- Release: Target Q3 2017

Looking for Beta Testers!

Please help us test this important release
Confirm it works for your implementation
We fix your bugs first!

Event Frames Roadmap – moving forward to 2017-2018





**Have an idea how
to improve our
products?**

**OSIsoft wants to
hear from you!**

<https://feedback.osisoft.com/>



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Questions

Please wait for the **microphone** before asking your questions



State your **name & company**

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감사합니다

谢谢

Danke

Merci

Gracias

Thank You

ありがとう

Спасибо

Obrigado