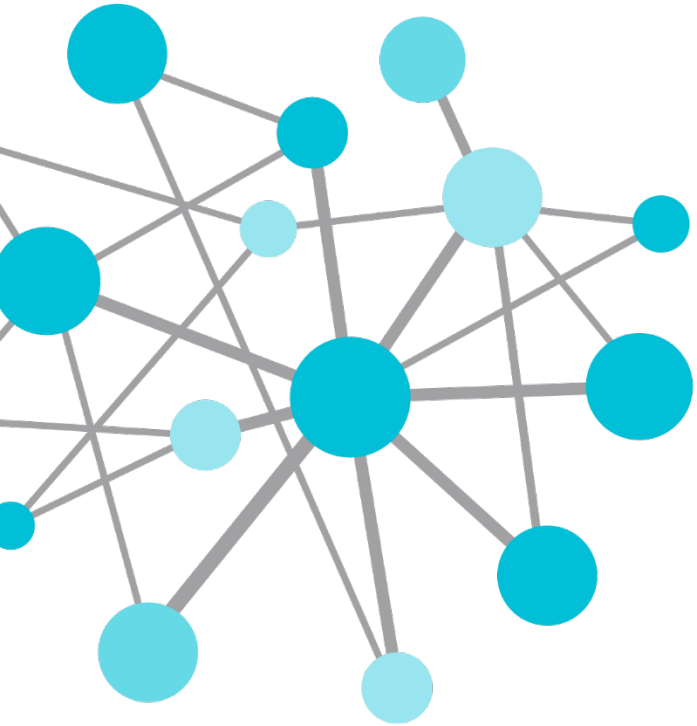

히스토리안에서 전략적 인프라로의 진화

The Power of Connected Infrastructure

Presented by 김영진 / OSIsoft Korea

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OSIsoft.

REGIONAL SEMINAR 2014

데이터의 무한 가능성

잠재된 가치를 자산으로

K O R E A

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정보의 변화와 도전

Information Challenges

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AS TIME GOES ON, IT'S HARDER TO FIND INFORMATION.

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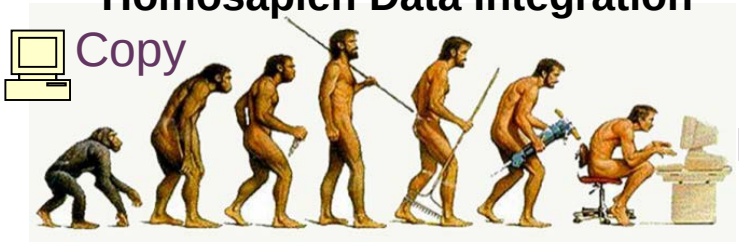
Information Challenges

"Homosapien Data Integration"



Hard to Find Related Data

Increasing Data

Events & Process Data Are Not Integrated

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Why a Data Infrastructure

Electrical Power	Water Systems	Transportation	Communication	Data
Sustainable	Reliable	Accessible	Enabling	Organized

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히스토리안의 진화

Evolution of Historian

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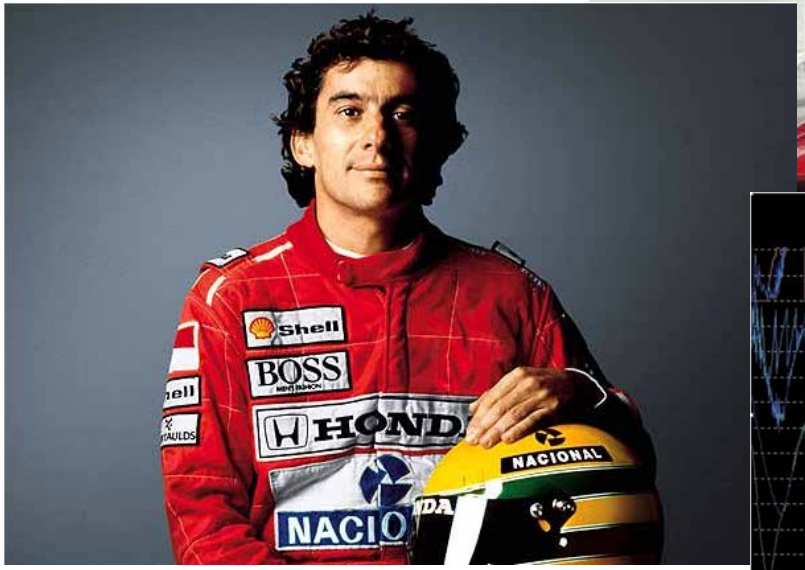
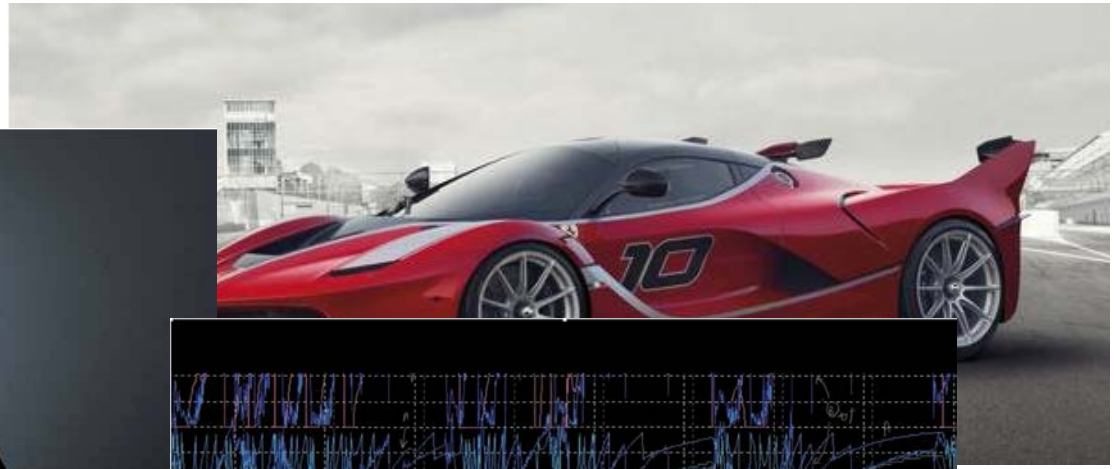
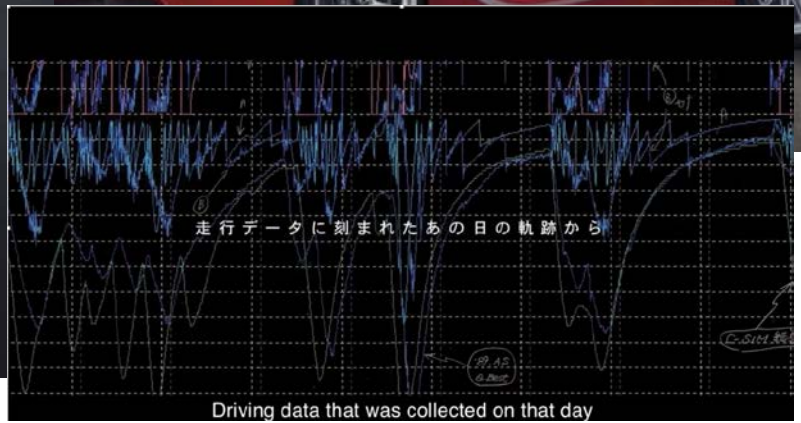
Best Record = Golden Batch, Operation



Aryton Senna (1960~1994)





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Sound
of
Honda

PI System Infrastructure

I need to be notified when this kind of events happen.

I need the big picture of my wind turbines to understand what is going on.

The pump is not working. What's the problem?

I need to analyze and compare turbines performance.

Information must be shared across the enterprise through different business systems.

We all want to know how the plant is performing in real-time.

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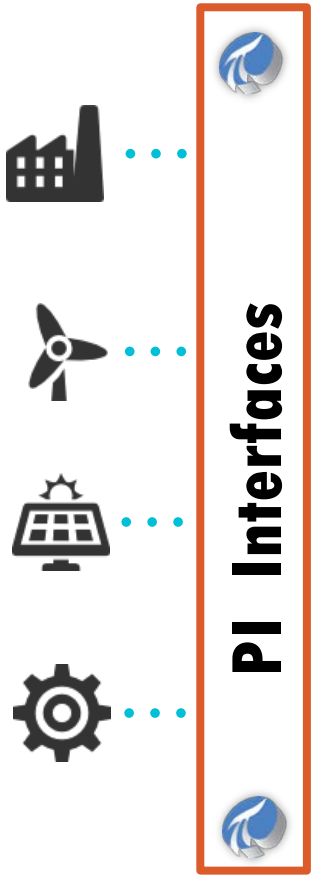
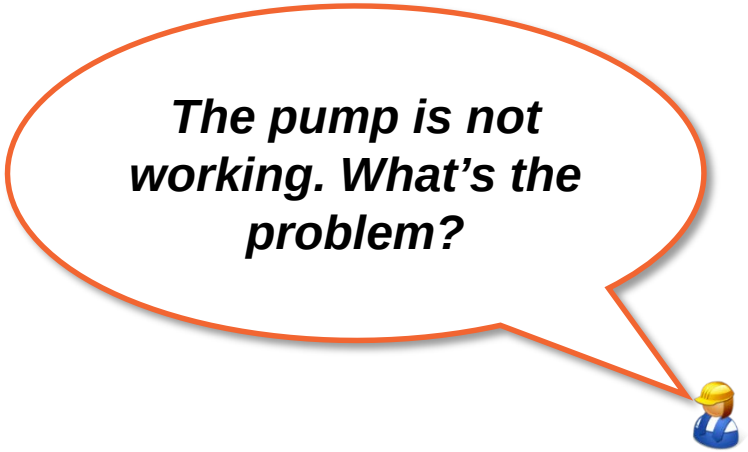
PI System Infrastructure





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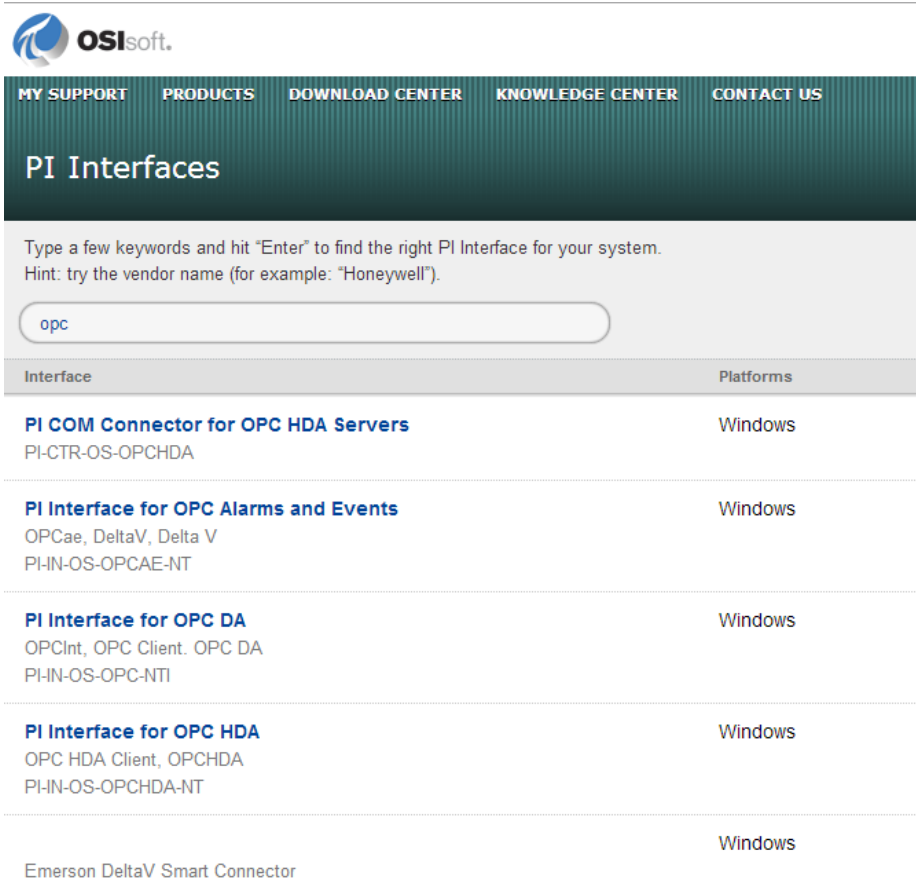
PI Interfaces

- More than **450** interfaces
- Support multiple **protocols** and **data sources**
  - OPC, Modbus, SNMP, Text File, ODBC
- Robust and reliable



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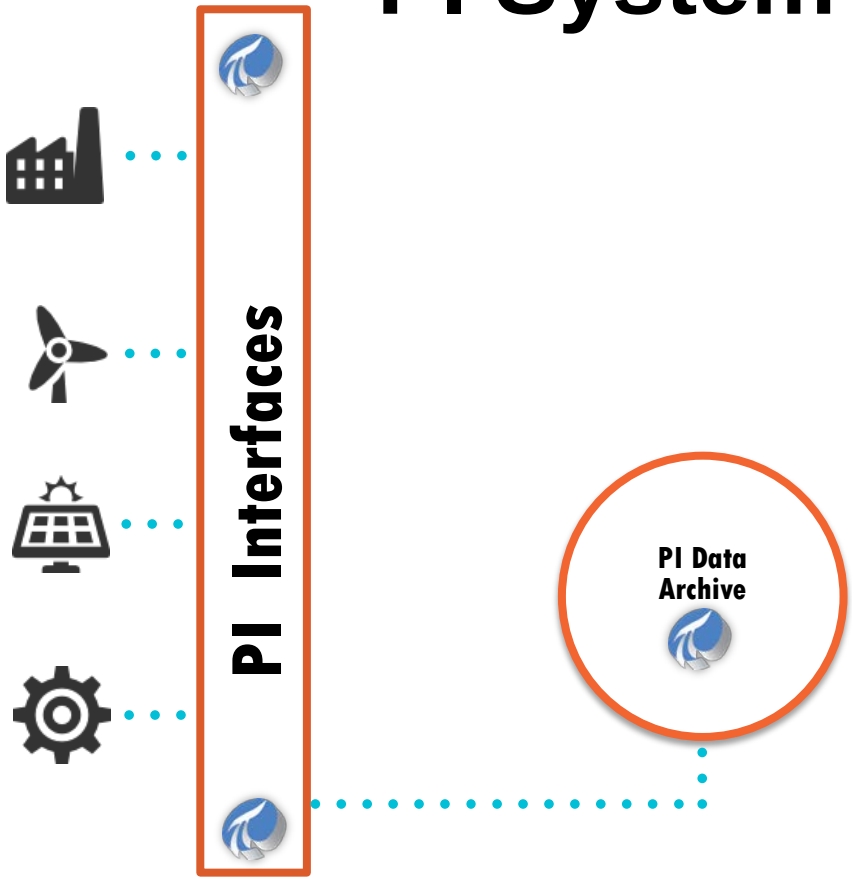
PI System Infrastructure



The pump is not working. What's the problem?

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PI Data Archive

- Optimized for **real time** data **streams** - TAGS

TAG	TIME	VALUE	STATUS
TIC1001.PV	23-MAY-08 11:01:02	12.3	GOOD
LIC30211.PV	23-MAY-08 11:01:03	198.4	GOOD
…	…	…	…

- Designed to archive data for **millions** of tags and **tens** of years

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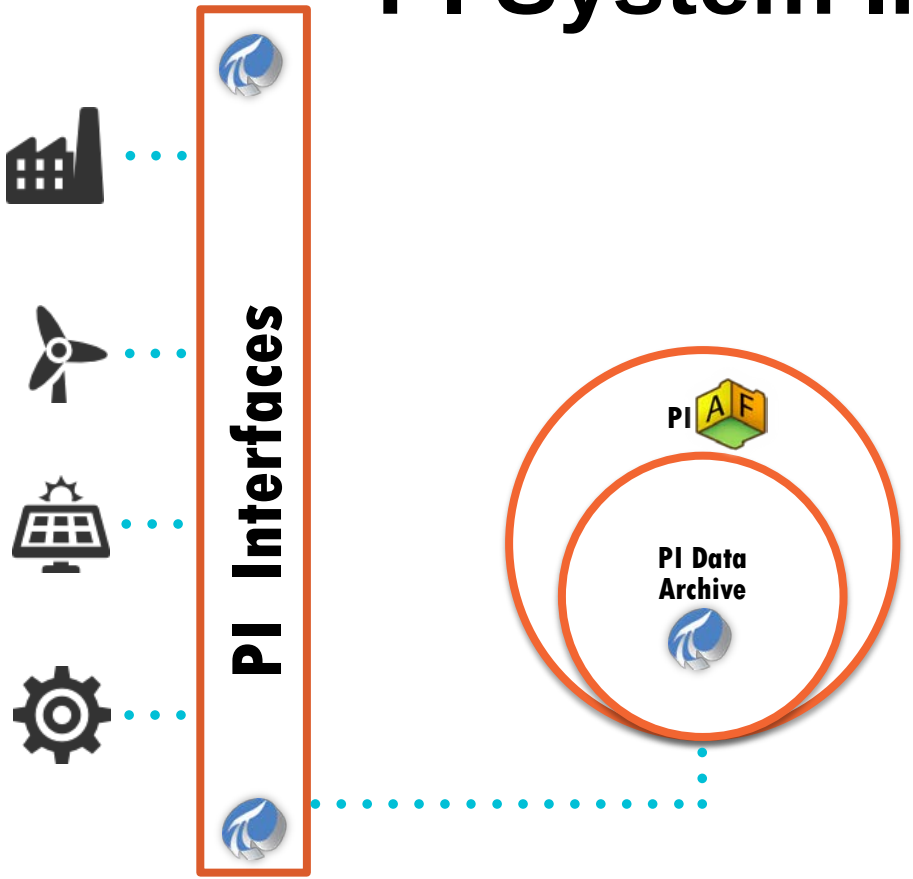
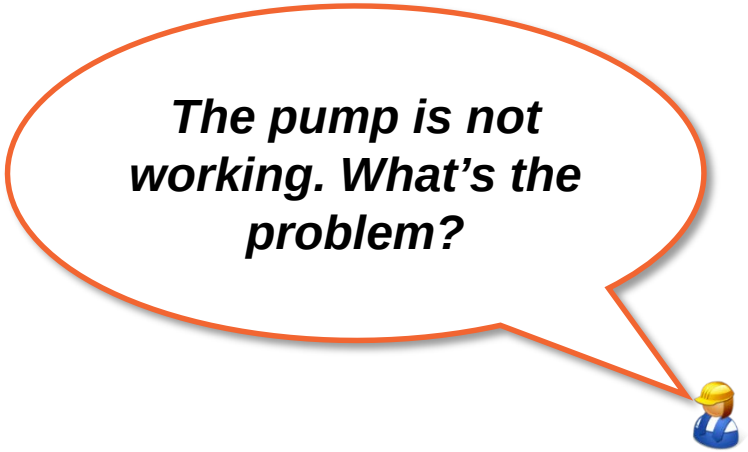
PI System Infrastructure





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PI Asset Framework (PI AF)

- Organize your assets data in a **hierarchical**, **scalable**, **secure**, and **extensible** database
- Model data from **different PI Servers**
- Relate **non time-series** data sources
- Integrate with **analyses** and **notifications** tools

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The Big Picture

- Elements
  - Boilers
  - Equipment
  - NuGreen
    - Houston
      - Cracking Process
        - Equipment
          - B-210
          - B-235
          - F-321
          - F-409
          - H-2043
          - H-230
          - K-304
          - K-556
          - P-214
          - P-456
          - P-560
      - Extruding Process
      - Milling Process
    - Little Rock
    - Tucson
    - Wichita
  - Pumps
    - P-007
    - P-009
    - P-020
    - P-099
    - P-101

Analyses
- Efficiency analysis
- Key Performance Indicators (KPI)

Time-series
- In-Flow
- Pressure
- Vibration data

Events
- Downtime
- Startup
- Failure

Asset details
- Name
- Model
- Manufacturer

Notifications
- High speed
- Rotor failure
- Low pressure

External data
- Performance curves
- Last maintenance date
- Design documents
- Best operating procedures

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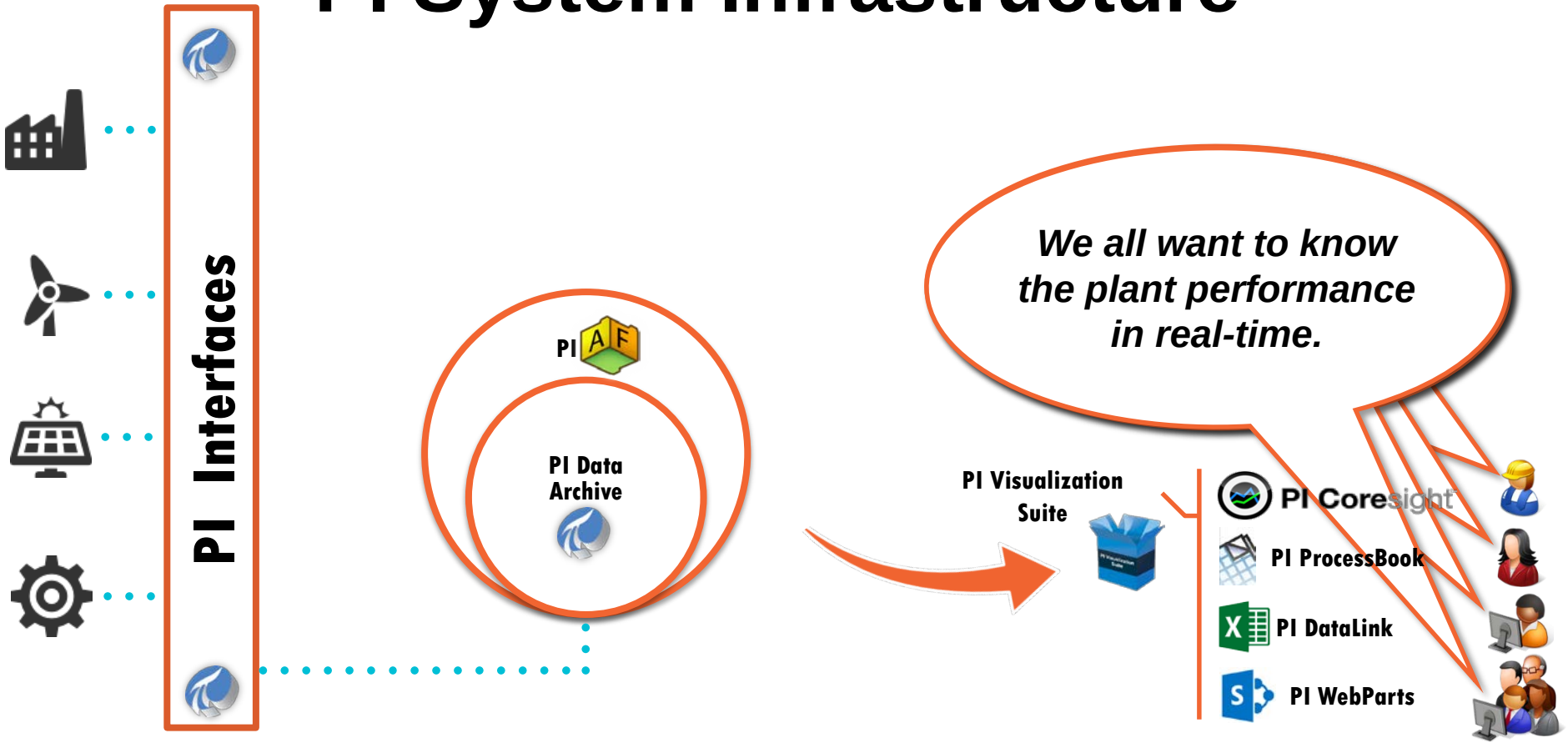
PI System Infrastructure



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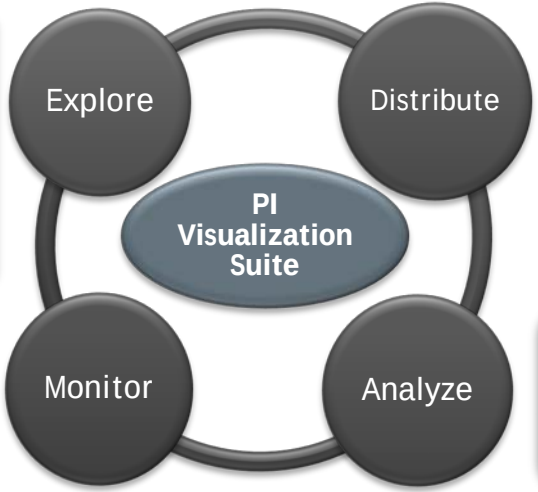
Visualization Landscape

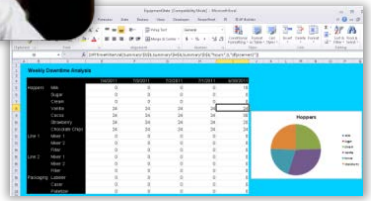
PI Coresight
Collaboration and ad hoc analysis



PI WebParts
Composite web applications

PI ProcessBook
Authoring tool for process displays and trends

PI DataLink
Reports and data analysis



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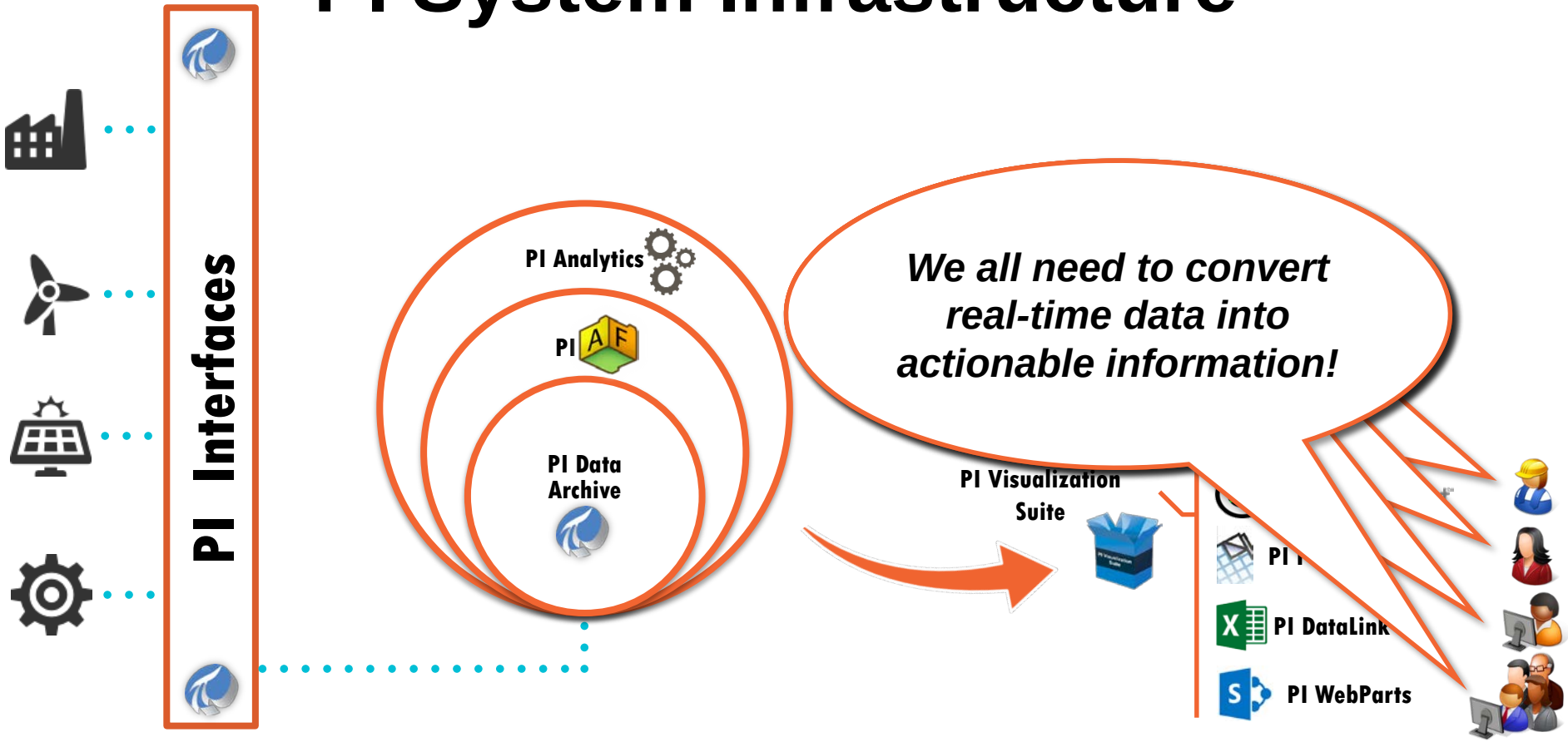
PI System Infrastructure



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Asset Based Analytics

- Easy – empower users to build their own calculations
- Reuse and standardize
  - Clarity and correctness
- Rollup and summarize
- Not just numbers, events too
- Performance and scalability

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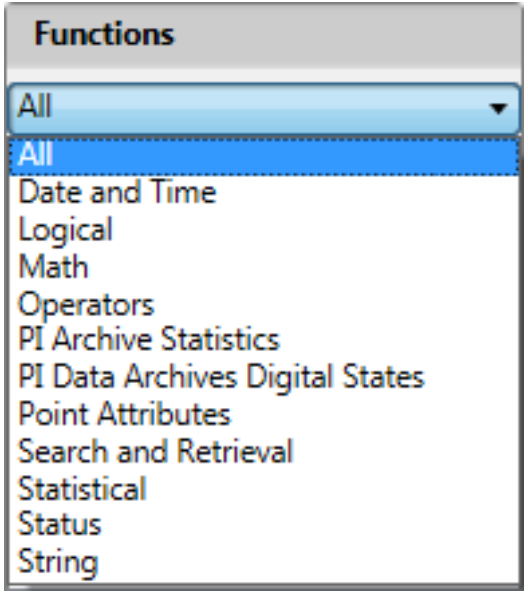
PI Analytics

- Transforms operational data into **actionable information**
- The analyses are:
  - Created by configuration or programming
  - Triggered periodically or on events
  - Consulted on-demand or historized



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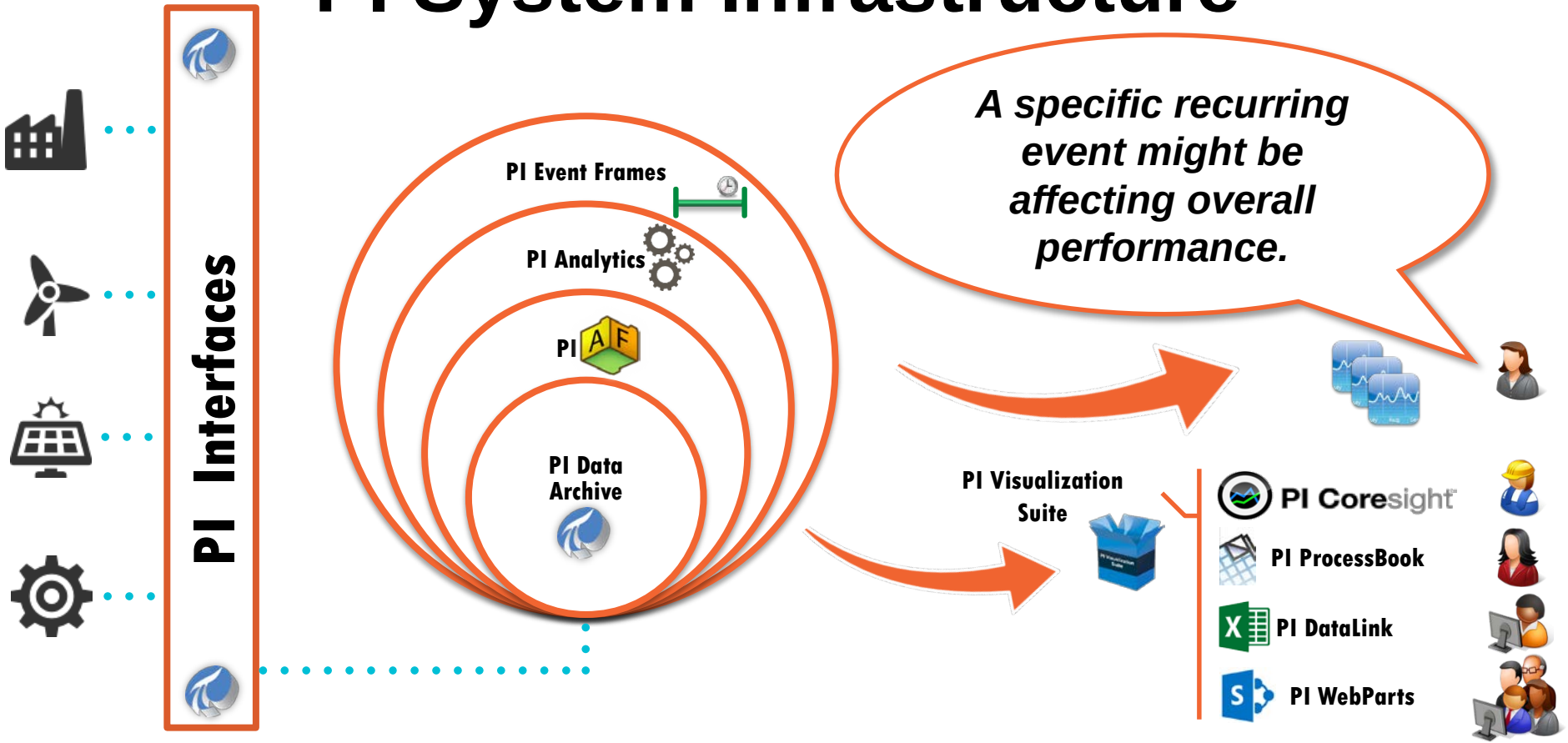
PI System Infrastructure



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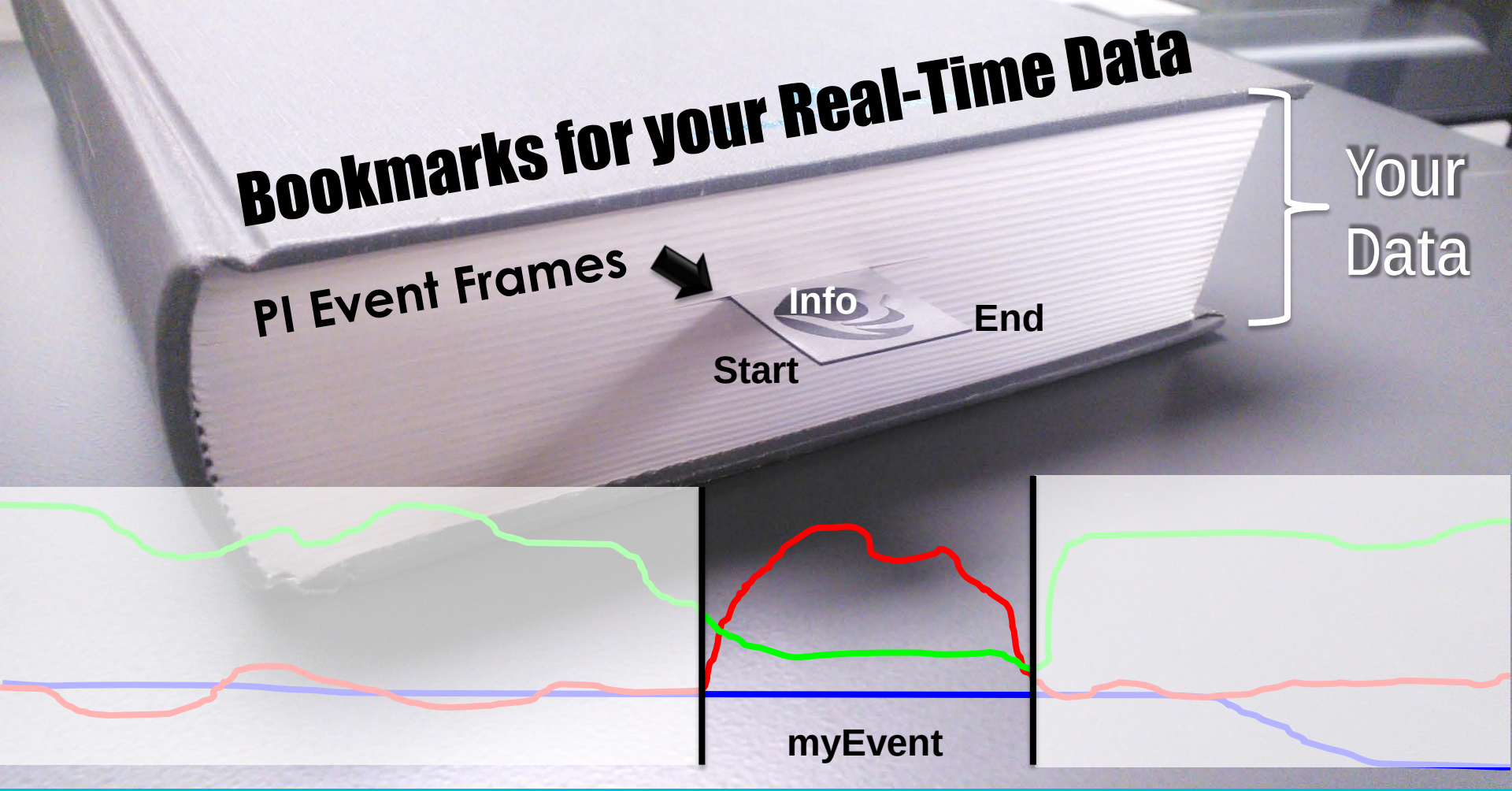

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Information Challenges

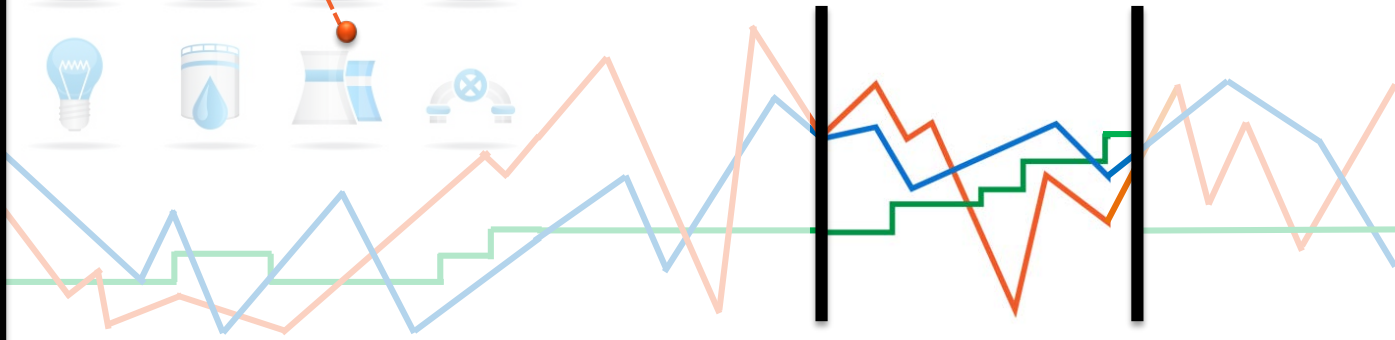
PI Event Frames

Events Shorten the Time to Insight

Too High!

Downtime

Batches



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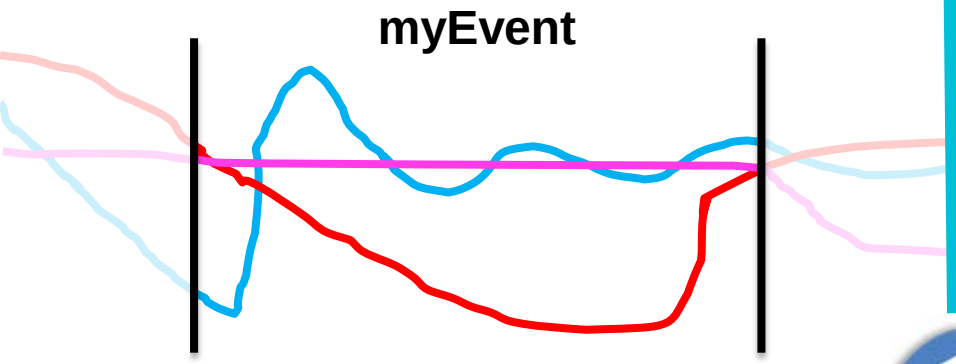
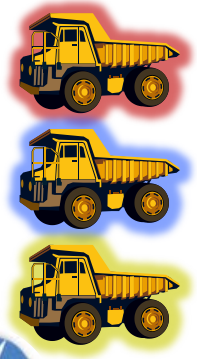
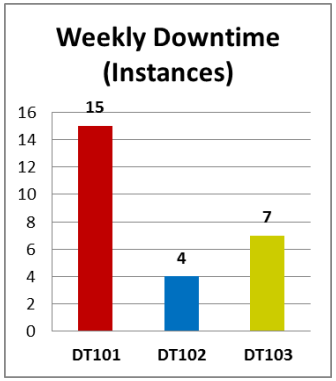
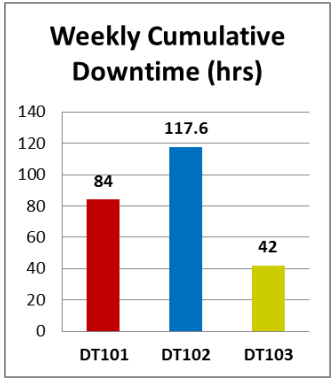
Simplify Data Analysis

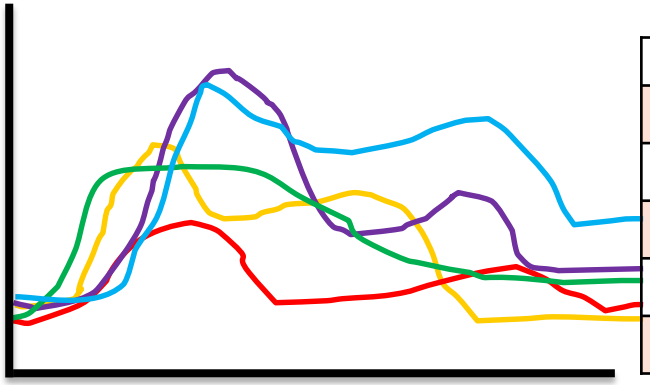


Perform Asset Comparisons







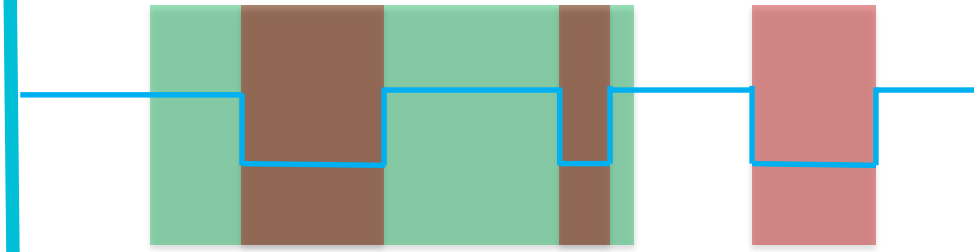


Name	Temp.Max
EF1	122.47
EF2	109.34
EF3	112.73
EF4	98.61
EF5	125.24

Downtime Events for Product XYZ

Product XYZ (1)

Downtime (2)



Perform Event Comparisons

Discover Event Interrelationships

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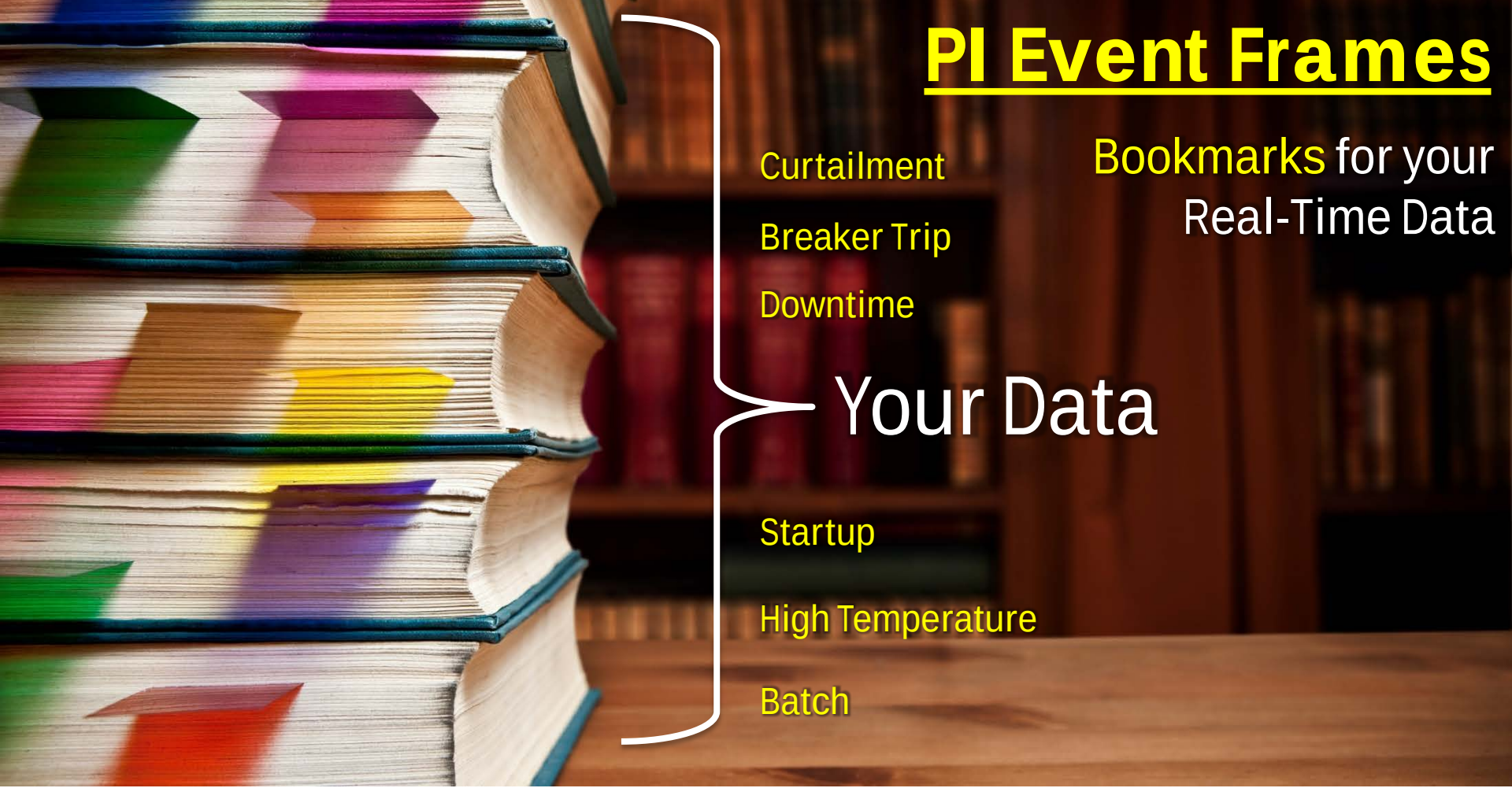
PI Event Frames

Bookmarks for your Real-Time Data



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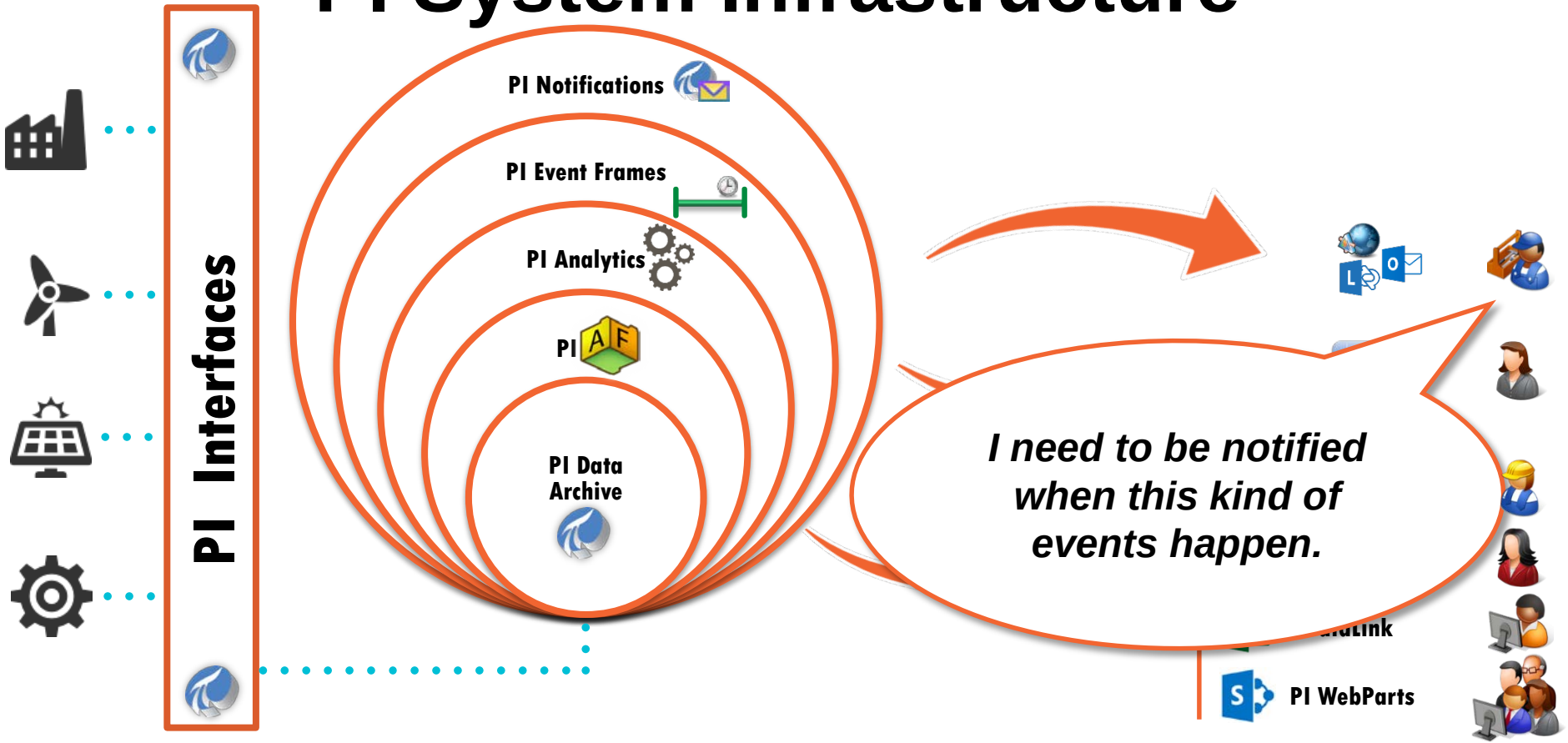
PI System Infrastructure



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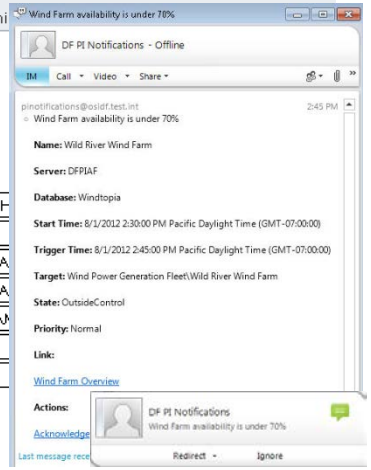
PI Notifications

DELIVER

From: PINotAdmin
To: Mariana Sandin
Cc:
Subject: Transformer TR0842 Load is in hi

Instant PI WebParts Trend
Acknowledge With Comment
Acknowledge

Name:	Transformer Load - H
State:	High
Trigger Time:	7/29/2012 9:07:01 A
Start Time:	7/29/2012 9:07:01 A
End Time:	1/1/1970 12:00:00 AM
Triggering Condition:	Load > 22
Target:	TR0842



Web Service

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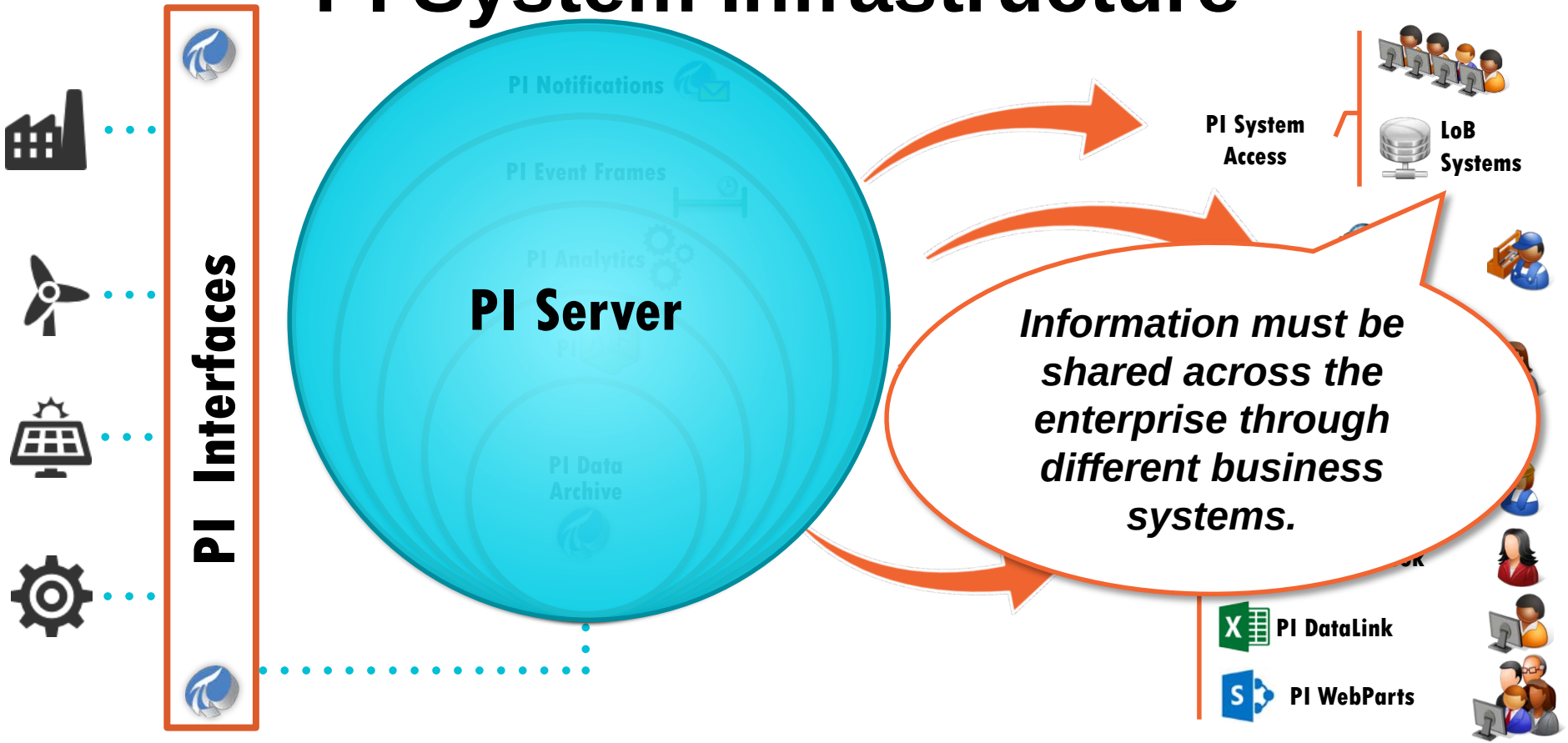
PI System Infrastructure



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Context

*"I am the **energy efficiency expert**. I need to **analyze** and **compare** truck **performance** for **different mining sites** located hundreds of miles from my office."*

"An incident happened last night."

"I need data to assess the situation but it is not readily available."

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...are we in the future yet?

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Name: **Stan** Prosowski
Role: **Sr. Plant Operator**

Name: **Kevin** Lee
Role: **PI System Administrator**

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senior plant operator,
o record and visualize forecast data with our PI System,
***now in real-time** how good is our actual production*
***nticipate** both **risks and opportunities**."*

system administrator,
uilt-in and flexible future data storage in our PI System,
*all data is **safe, secure, and highly available**,*
*ustom retention policies can be **easily implemented**."*

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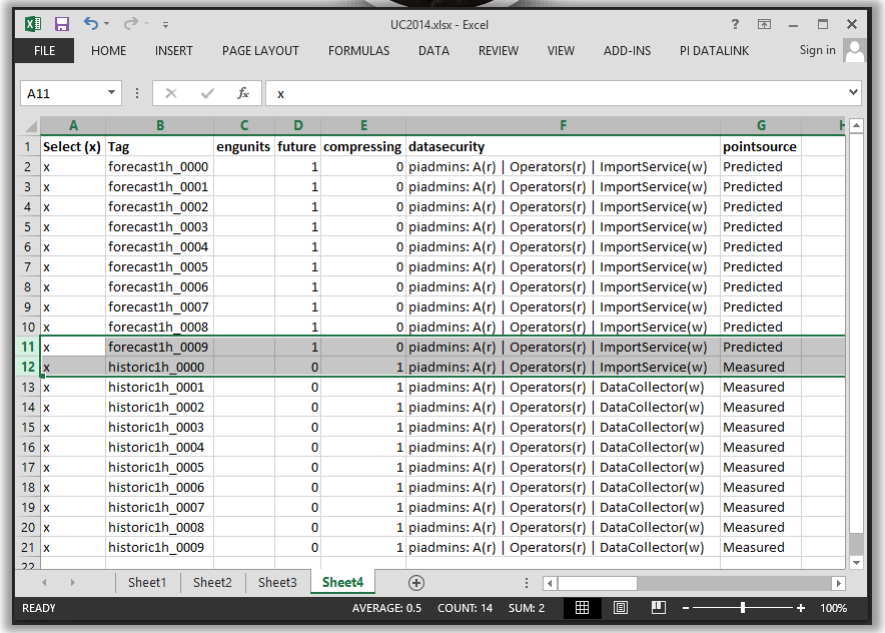

	A	B	C	D	E	F	G
1	Select (x)	Tag	engunits	future	compressing	datasecurity	pointsource
2	x	forecast1h_0000		1	0	piadmins: A(r) | Operators(r) | ImportService(w)	Predicted
3	x	forecast1h_0001		1	0	piadmins: A(r) | Operators(r) | ImportService(w)	Predicted
4	x	forecast1h_0002		1	0	piadmins: A(r) | Operators(r) | ImportService(w)	Predicted
5	x	forecast1h_0003		1	0	piadmins: A(r) | Operators(r) | ImportService(w)	Predicted
6	x	forecast1h_0004		1	0	piadmins: A(r) | Operators(r) | ImportService(w)	Predicted
7	x	forecast1h_0005		1	0	piadmins: A(r) | Operators(r) | ImportService(w)	Predicted
8	x	forecast1h_0006		1	0	piadmins: A(r) | Operators(r) | ImportService(w)	Predicted
9	x	forecast1h_0007		1	0	piadmins: A(r) | Operators(r) | ImportService(w)	Predicted
10	x	forecast1h_0008		1	0	piadmins: A(r) | Operators(r) | ImportService(w)	Predicted
11	x	forecast1h_0009		1	0	piadmins: A(r) | Operators(r) | ImportService(w)	Predicted
12	x	historic1h_0000		0	1	piadmins: A(r) | Operators(r) | ImportService(w)	Measured
13	x	historic1h_0001		0	1	piadmins: A(r) | Operators(r) | DataCollector(w)	Measured
14	x	historic1h_0002		0	1	piadmins: A(r) | Operators(r) | DataCollector(w)	Measured
15	x	historic1h_0003		0	1	piadmins: A(r) | Operators(r) | DataCollector(w)	Measured
16	x	historic1h_0004		0	1	piadmins: A(r) | Operators(r) | DataCollector(w)	Measured
17	x	historic1h_0005		0	1	piadmins: A(r) | Operators(r) | DataCollector(w)	Measured
18	x	historic1h_0006		0	1	piadmins: A(r) | Operators(r) | DataCollector(w)	Measured
19	x	historic1h_0007		0	1	piadmins: A(r) | Operators(r) | DataCollector(w)	Measured
20	x	historic1h_0008		0	1	piadmins: A(r) | Operators(r) | DataCollector(w)	Measured
21	x	historic1h_0009		0	1	piadmins: A(r) | Operators(r) | DataCollector(w)	Measured

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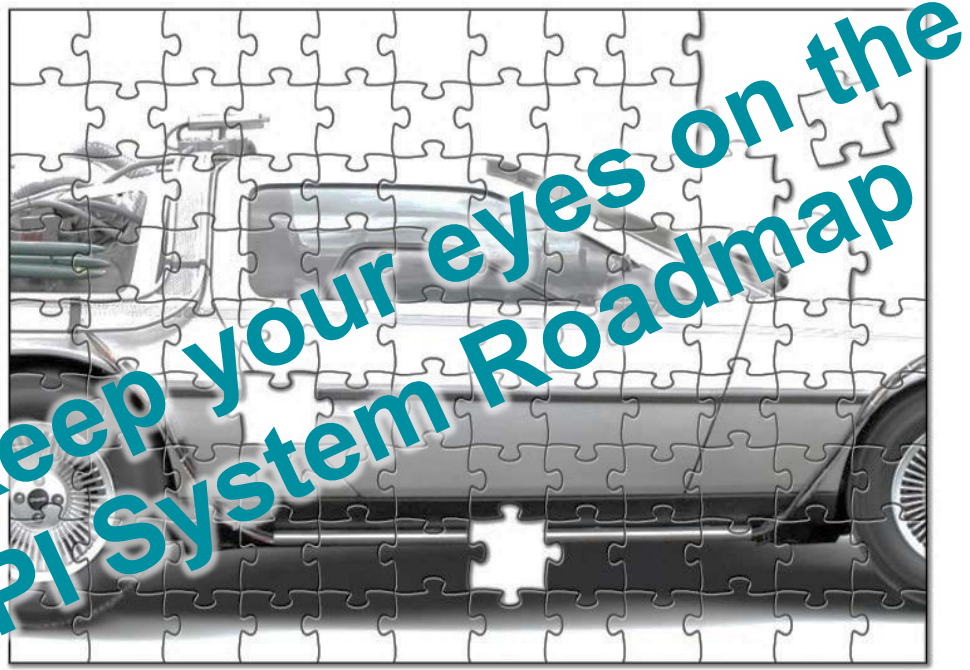
System-Wide Future Data

- PI Interfaces/Connectors
  - Data In
- PI Server
  - AF and Analytics
- Programmatic Access
  - PI AF SDK, Web API, …
- Clients
  - PI DataLink, PI Coresight, …



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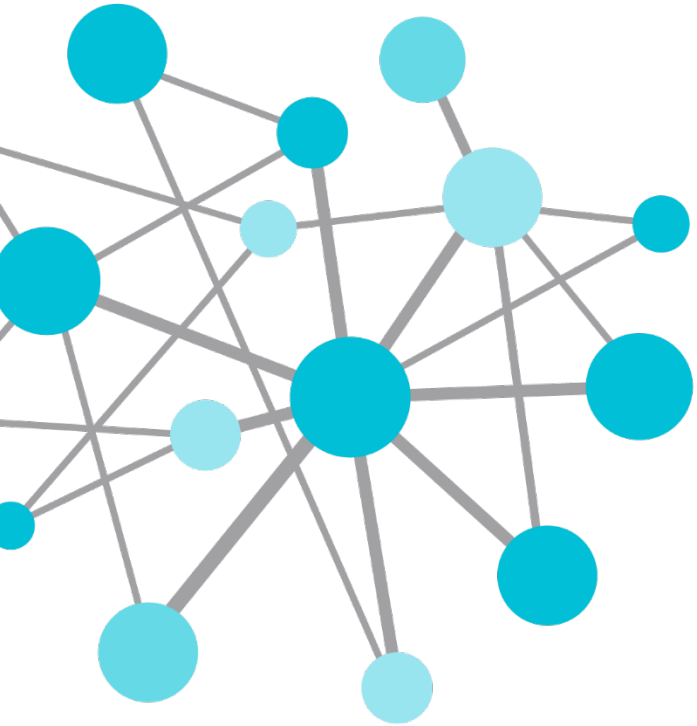

Summary

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PI System Infrastructure

PI Visualization Suite / PI System Access

PI Event Frames

PI Interfaces for Health Monitoring

PI Asset Framework

PI Notifications

PI Data Archive

PI Analytics

PI Interfaces

Cloud Computing

Windows Integrated Security

High Availability (HA)

64-bit Architecture

Virtualisation

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Summary

OSIsoft. REGIONAL SEMINAR 2014
데이터의 무한 가능성
잠재된 가치를 자산으로
K O R E A

The PI System infrastructure…

… manages and stores **time-series**, **assets**, and **events** information regardless of the data sources.

… is **interoperable**, **extensible**, and **secure.**

… continues to **evolve** so you can unleash the Power of your Data!

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김영진

rkim@osisoft.com
상무이사
OSIsoft Korea

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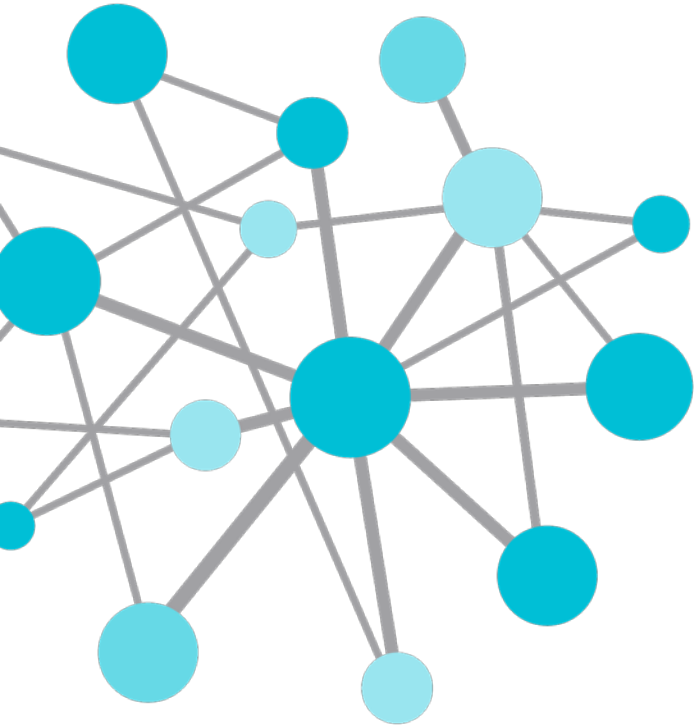

THANK YOU

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