



PI Connectors™

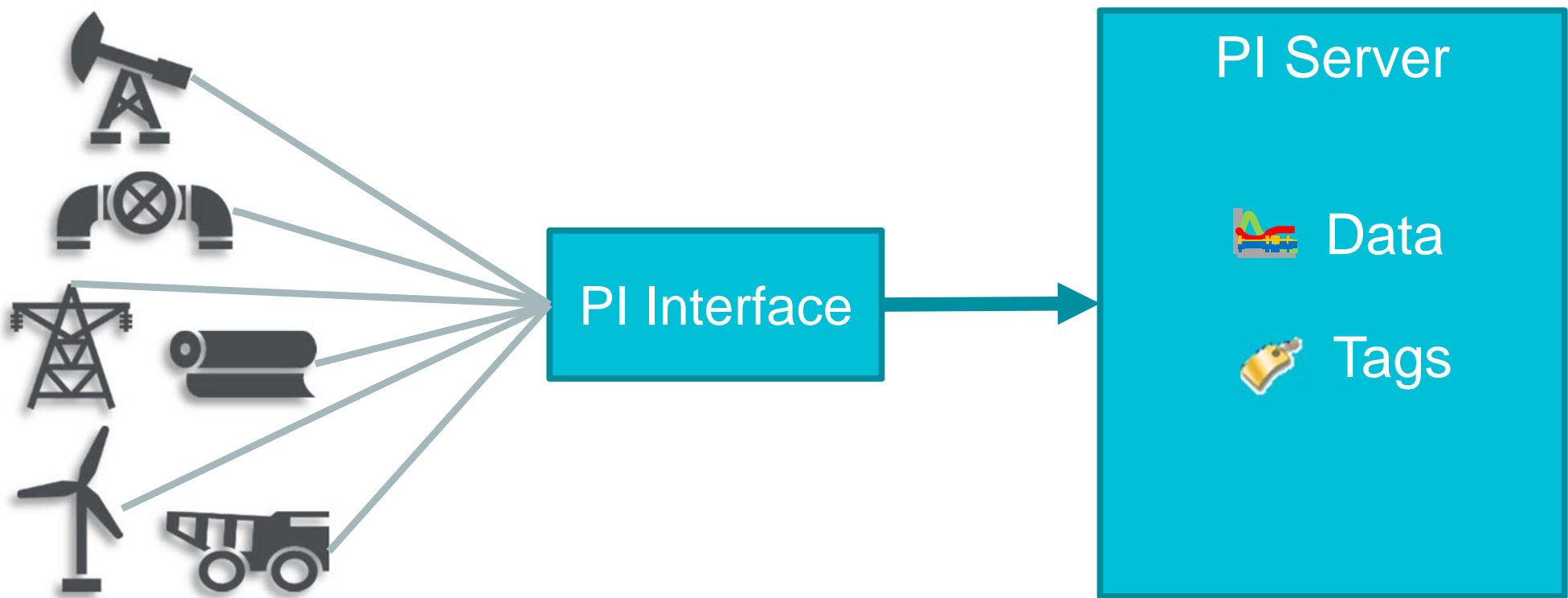
Presented by **Shivesh Suman, Escalation Engineer**

Agenda

- PI Interfaces – Data collection modules that we have today.
- Introduce PI Connectors
- Key advantages over Interfaces
- Example Connectors
- Release pipeline

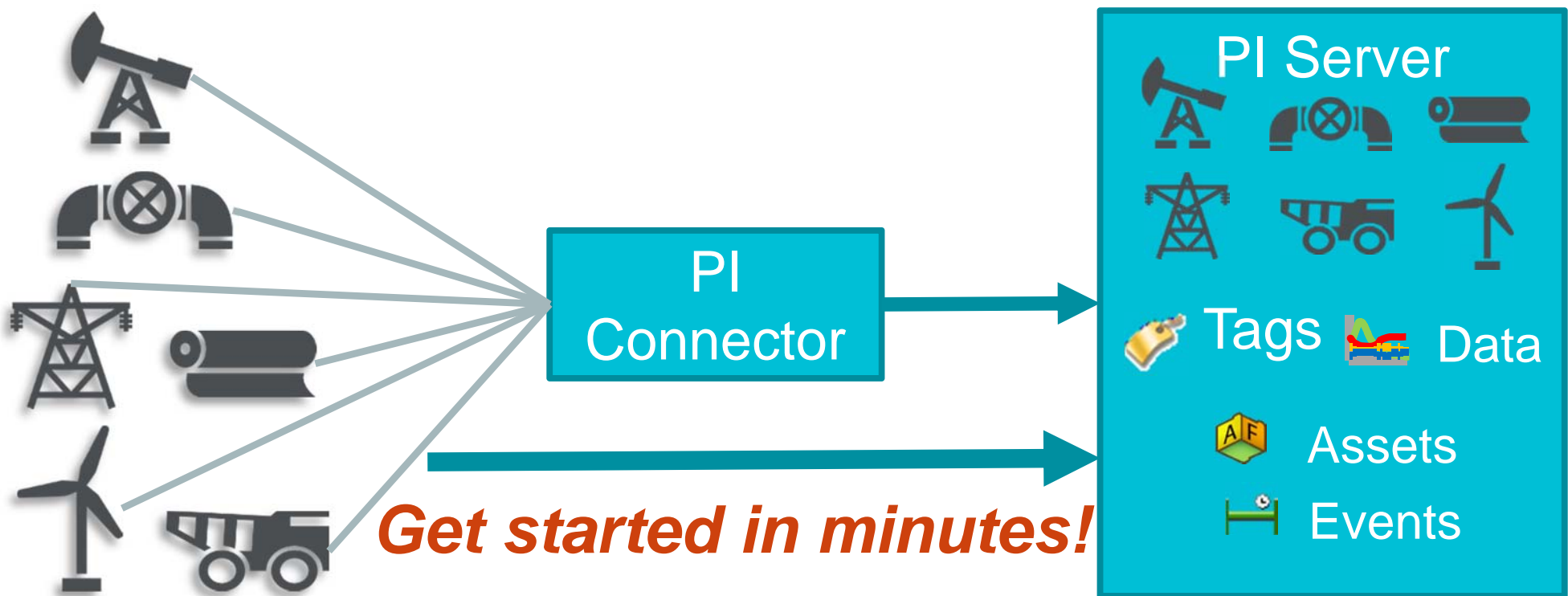
PI Interfaces:

Proven and reliable data collection



PI Connectors:

Strong connections to your data sources



PI Interfaces vs. PI Connectors

PI Interfaces

- Challenging to configure
- Spend lots of time configuring tags
- Create an Asset mode and then tie to the tag database
- Most interface run only on Windows

PI Connectors

- Minimal Configuration
- Auto-discovery of assets and tags
- Auto-create assets and tags
- Can Run on Linux
- Higher speed

Few Connectors

PI Connector for IPMI – *Already Released!*

**Intelligent Platform
Management Interface
(IPMI)**

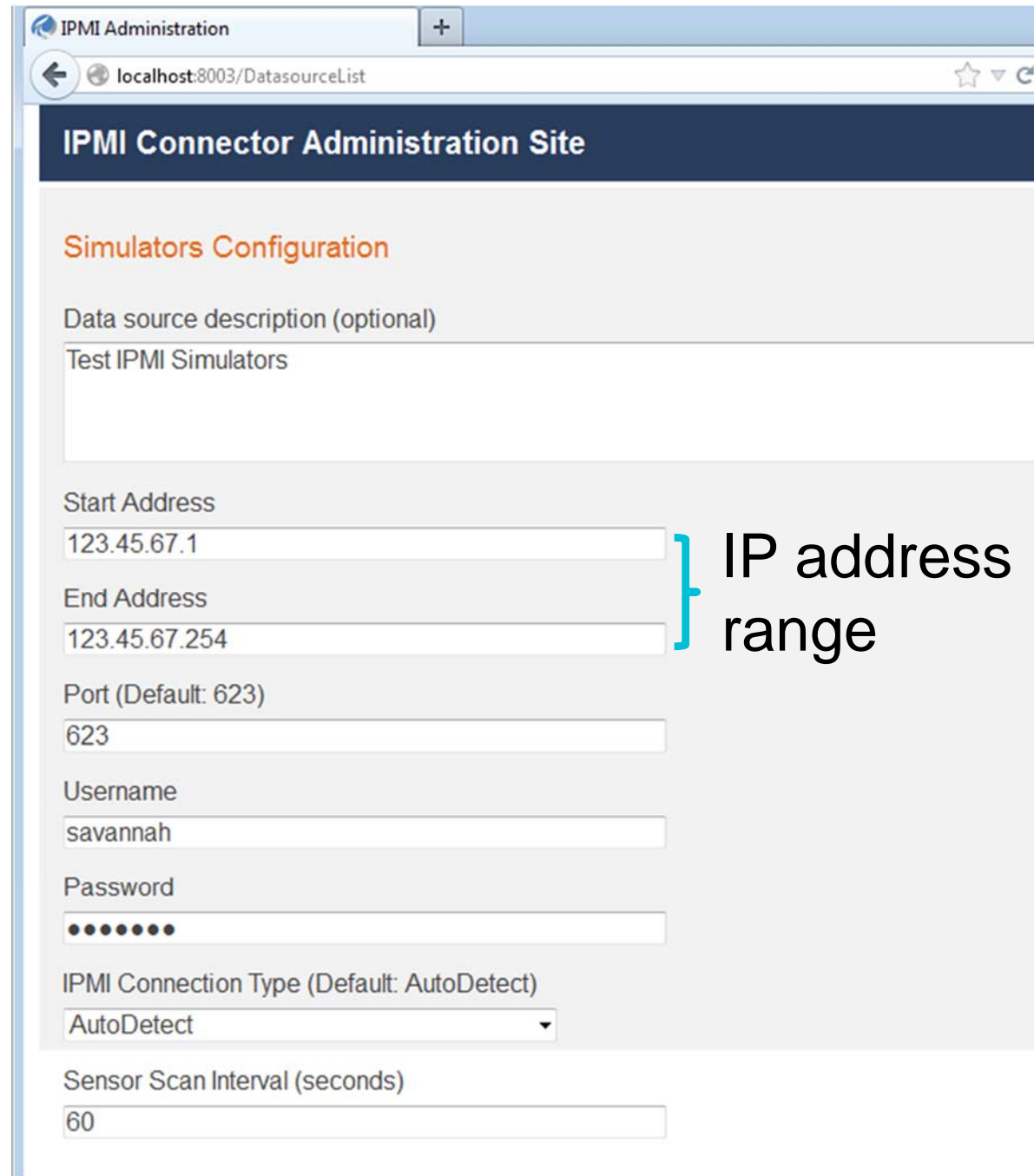
**Monitors the health of
the system hardware**

**Independent of main
processors, BIOS, and
OS**

**Available when the
system is powered
down**

Configuration

- Self hosted web site
- Configuration using a browser client



The screenshot shows a web browser window titled "IPMI Administration" with the address bar displaying "localhost:8003/DatasourceList". The page header is "IPMI Connector Administration Site". The main content area is titled "Simulators Configuration" in orange text. Below this, there is a section for "Data source description (optional)" with a text input field containing "Test IPMI Simulators". Further down, there are several configuration fields: "Start Address" with a text input field containing "123.45.67.1", "End Address" with a text input field containing "123.45.67.254", "Port (Default: 623)" with a text input field containing "623", "Username" with a text input field containing "savannah", "Password" with a text input field containing seven dots, "IPMI Connection Type (Default: AutoDetect)" with a dropdown menu showing "AutoDetect", and "Sensor Scan Interval (seconds)" with a text input field containing "60". A blue bracket on the right side of the "Start Address" and "End Address" fields points to the text "IP address range".

IPMI Administration

localhost:8003/DatasourceList

IPMI Connector Administration Site

Simulators Configuration

Data source description (optional)

Test IPMI Simulators

Start Address

123.45.67.1

End Address

123.45.67.254

Port (Default: 623)

623

Username

savannah

Password

••••••••

IPMI Connection Type (Default: AutoDetect)

AutoDetect

Sensor Scan Interval (seconds)

60

IP address range

Asset Structure

Elements

- Elements
 - Connectors
 - IPMI Connector
 - 123.45.67.1
 - Disk Drive Bay (26.3) ROMB Battery
 - Power Supply (10.1) Current 1
 - Power Supply (10.1) Temp
 - Power Supply (10.1) Voltage 1
 - Power Supply (10.2) Current 2
 - Power Supply (10.2) Temp
 - Power Supply (10.2) Voltage 2
 - Processor (3.1) Temp**
 - Processor (3.2) Temp
 - System Board (7.1) 0.9V Over Volt
 - System Board (7.1) 0.9V PG
 - System Board (7.1) 1.5V PG
 - System Board (7.1) 1.8V PG
 - System Board (7.1) 3.3V PG
 - System Board (7.1) 5V PG
 - System Board (7.1) Ambient Temp
 - System Board (7.1) Backplane PG
 - System Board (7.1) CMOS Battery
 - System Board (7.1) CPU Power Fault
 - System Board (7.1) CPU Temp Interf
 - System Board (7.1) CPU VTT
 - System Board (7.1) FAN 1 RPM
 - System Board (7.1) FAN 2 RPM
 - System Board (7.1) FAN 3 RPM

Processor (3.1) Temp

General Child Elements Attributes Ports Version

Filter

Name	Value	Timestamp
Entity ID	Processor	1/1/1970 12:00:00 AM
IPAddress	123.45.67.1	1/1/1970 12:00:00 AM
Lower Critical	—	1/1/1970 12:00:00 AM
Lower Non Critical	—	1/1/1970 12:00:00 AM
Lower Non Recoverable	—	1/1/1970 12:00:00 AM
Nominal Reading	50	1/1/1970 12:00:00 AM
Normal Maximum	69	1/1/1970 12:00:00 AM
Normal Minimum	11	1/1/1970 12:00:00 AM
Scaled Reading	87	3/19/2014 4:40:15.53 PM
Sensor Accuracy %	1.94	1/1/1970 12:00:00 AM
Sensor Direction	unspecified	1/1/1970 12:00:00 AM
Sensor ID	Temp	1/1/1970 12:00:00 AM
Sensor Maximum	127	1/1/1970 12:00:00 AM
Sensor Minimum	-128	1/1/1970 12:00:00 AM
Sensor Status	OK	3/19/2014 4:40:15.53 PM

PI Connector for EtherNet/IP

- EtherNet/IP standard managed by ODVA
- Industrial Protocol over Ethernet based on CIP



PI Connector

- Class 1 messages
- High rates (<10millisecond)

PI Server



Tags



Data



Assets



Events

Configuration

The screenshot shows a web browser window with the address bar displaying `http://localhost:8002/DatasourceList`. The browser tab is titled "EtherNet Administration". The page header is "EtherNet Ip Connector Administration Site". The main content area is titled "Demo_Slot_0000 Configuration". Below this title, there is a section for "Data source description (optional)" with a text input field containing "Demo_Slot_0000 Description". Below this, there are five input fields: "InputId" with value "1", "OutputId" with value "2", "ConfigurationId" with value "3", "Address" with value "0", and "CommFormat" with a dropdown menu showing "DINT". At the bottom of the form, there are "Save" and "Cancel" buttons.

http://localhost:8002/DatasourceList

EtherNet Administration

EtherNet Ip Connector Administration Site

Demo_Slot_0000 Configuration

Data source description (optional)

Demo_Slot_0000 Description

InputId

1

OutputId

2

ConfigurationId

3

Address

0

CommFormat

DINT

Save Cancel

Asset Structure

Elements

- Elements
 - Connectors
 - EtherNetIp_Connector
 - Demo_Slot_0000**
 - Demo_Slot_0001
 - Demo_Slot_0002
 - Demo_Slot_0003
 - Demo_Slot_0004
 - Demo_Slot_0005
 - Element Searches

Demo_Slot_0000

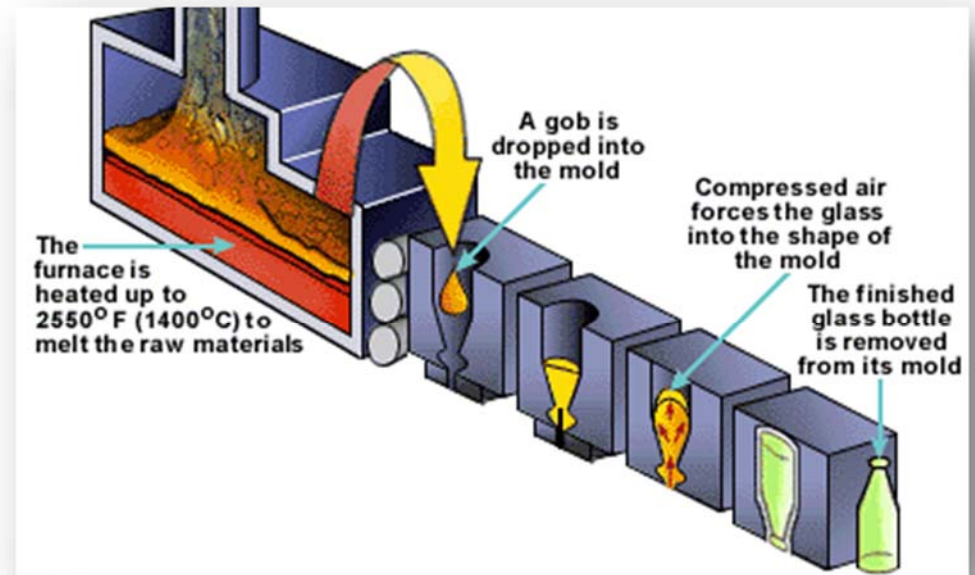
General Child Elements Attributes Ports Analyses Version

Filter

	Name	Value	Time Stamp
	Address	0	1/1/1970 12:00:00 AM
	Configuration	3	1/1/1970 12:00:00 AM
	Input	1	1/1/1970 12:00:00 AM
	Output	2	1/1/1970 12:00:00 AM
	Slot.0	2795	3/19/2014 4:17:20.694 PM
	Slot.1	0	3/19/2014 4:17:20.694 PM
	Slot.10	0	3/19/2014 4:17:20.694 PM
	Slot.100	0	3/19/2014 4:17:20.694 PM
	Slot.101	0	3/19/2014 4:17:20.694 PM
	Slot.102	0	3/19/2014 4:17:20.694 PM
	Slot.103	0	3/19/2014 4:17:20.694 PM
	Slot.104	0	3/19/2014 4:17:20.694 PM
	Slot.105	0	3/19/2014 4:17:20.694 PM
	Slot.106	0	3/19/2014 4:17:20.694 PM

PI Connector for Vertech SILC

- From feeder, molten glass is cut
- Gob of glass dropped into the mold
- Mass of gob transforms into a glass bottle



Configuration

Vertech_SILC Administration - Mozilla Firefox

File Edit View History Bookmarks Tools Help

SILFabrication Web Service x Vertech_SILC Administration

localhost:8005/DatasourceList

Vertech_SILC Connector Administration Site

plant12 Configuration

Data source description (optional)

this is plant 12 in the fleet

Service Address

← Web service

Plant Number

Plant Location

Data Interval (seconds)

[Cancel](#)

Asset Structure

Elements

- Elements
 - France
 - Vertech SILC
 - Plant12
 - LocationHE**
 - Feeder1
 - GOB1
 - GOB2

LocationHE

General Child Elements Attributes Ports Version

Filter

	Name	Value	Timestamp
	ArticleName	128 ml. Tomato Paste Jar FMG	3/13/2014 4:51:04.172 PM
	ArticleReference	D2100012811A66	3/13/2014 4:51:04.172 PM
	FeedersNb	1	3/13/2014 4:51:04.172 PM
	GobsNb	2	3/13/2014 4:51:04.172 PM
	Id	12	1/1/1970 12:00:00 AM
	JobOrder	100413-22	3/13/2014 4:51:04.172 PM
	LehrTime	105	3/13/2014 4:51:04.172 PM
	RealSpeed	0	3/13/2014 4:51:04.172 PM
	SectionsNb	10	3/13/2014 4:51:04.172 PM
	StandardSpeed	212	3/13/2014 4:51:04.172 PM

Asset Structure

Elements

- Elements
 - France
 - Vertech SILC
 - Plant12
 - LocationHE
 - Feeder1
 - GOB1
 - GOB2**

GOB2

General
 Child Elements
 Attributes
 Ports
 Version

Filter

	Name	Value	Timestamp
	Goal	100	3/13/2014 4:51:04.171 PM
	Id	2	1/1/1970 12:00:00 AM
	LCL	96	3/13/2014 4:51:04.171 PM
	LWL	98	3/13/2014 4:51:04.171 PM
	Nominal	100	3/13/2014 4:51:04.171 PM
	UCL	104	3/13/2014 4:51:04.171 PM
	UWL	102	3/13/2014 4:51:04.171 PM
	Value	99.1	3/13/2014 4:51:04.171 PM

PI Connector for CygNet



- Common SCADA in Oil & Gas upstream
- CygNet SCADA system collects data from various assets, such as:
 - Batteries (Oil treatment facilities)
 - Communication Devices
 - Wells
- Real-time data and metadata (Asset Data)

PI Connectors – Key Advantages

- Reduce interface configuration time
- Eliminate tag configuration and maintenance
- Automate creation of asset hierarchy

Release pipeline

- PI Connector for IPMI – *Already released*
- PI Connector for CygNet - *Beta*
- PI Connector for Vertech SILC - *Beta*
- PI Connector for EtherNet/IP - *Beta*
- PI Connector for Kongsberg
- PI Connector for DC Systems RTscada

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