

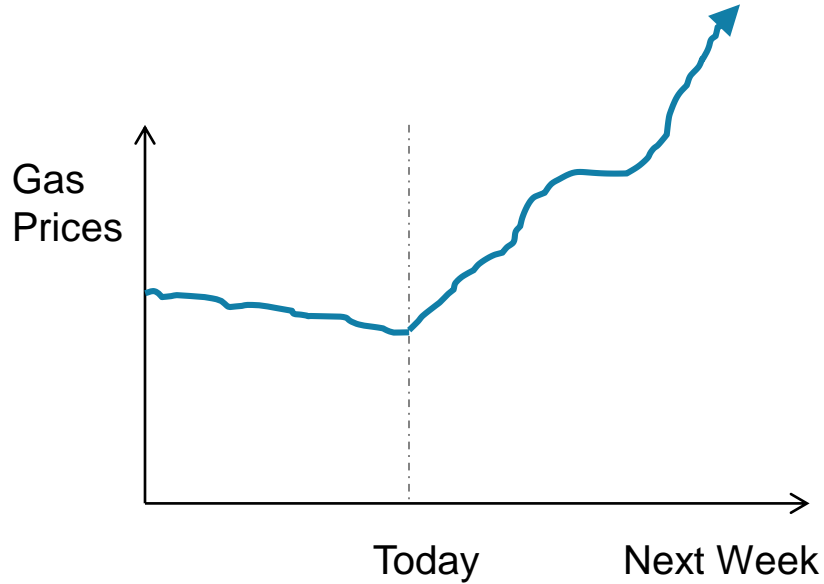


# PI Server 2015:

## Deploying and Using Future Data for Operational Insights

Presented by **David Nguyen, Systems Engineer**  
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# What would you do if you saw this?



## How about now?

# Power of Future Data: What could you do if you knew?

## PRODUCTION

### What you do:

Are we on track to hit our production targets?

Do the fiscal projections justify deviating from standard operation?

## DEMAND

### What the market wants:

How much power will our customers need in the next 24 hours?

How much material are we obligated to deliver?

## ENVIRONMENT

### What the world does:

Do we have enough units online to handle the storm?

Is there an abnormal heatwave that will compromise the grid?



# Integrate forecasts natively into the PI System

## PI Server 2015

The screenshot shows the California ISO website. At the top is the California ISO logo and a navigation bar with links: ABOUT US, PARTICIPATE, STAY INFORMED, PLANNING, MARKET & OPERATIONS, and RULERS. Below the navigation bar is a large banner image of the San Francisco skyline at night. To the left of the banner are three buttons: 'Joining us' (blue), 'Going green' (green), and 'Looking ahead' (orange). To the right of the banner is a section titled 'Today's Outlook' for Mon Jun 1 08:54:06 2015, showing 'Current Demand: 26,827 MW' and 'Forecast Peak: 29,796 MW'. Below this is a 'Calendar' section with tabs for 'News Releases' and 'Recent Documents'. The 'News Releases' tab is active, showing a list of news items for Monday, Tuesday, and Wednesday. At the bottom of the page is a 'QUICK LINKS' section with links to Board, Business Practice Manuals, Careers, and Tariff. To the right of this is a 'STAY INFORMED' section with links to Alerts, Warnings and Emergency Notifications, Market Notices, Notification Signups, and Recent Documents. Further right is a 'RELATED WEBSITES' section with links to California's Clean Energy Future, Market Participant Portal, and OASIS. At the bottom right is a 'STAY CONNECTED' section with social media icons for Twitter, Facebook, LinkedIn, YouTube, and a mobile app icon.

**Today's Outlook** Mon Jun 1 08:54:06 2015

**Current Demand:**

**26,827 MW**

**Forecast Peak:**

**29,796 MW**

[Click for more](#)

### Supply and Demand

Graph displays current system demand plotted against forecast demand and available resources. See tutorial for more information on this graph.

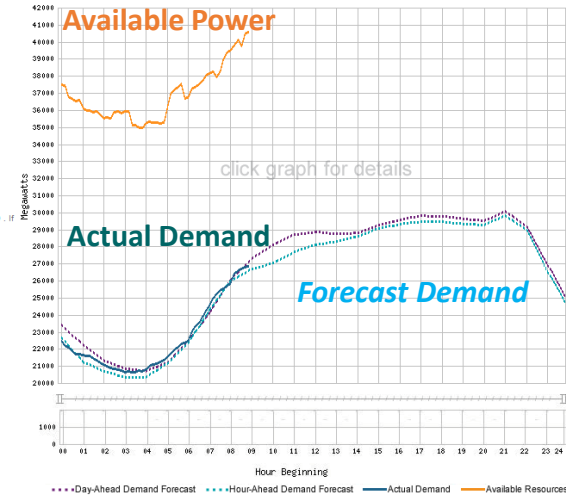
**Current System Demand:**  
(Actual Demand at this point in time)  
**26827 MW**

**Today's Peak Demand:**  
(Highest point thus far today)  
**26827 MW**

**Today's Forecast Peak Demand:**  
(Highest point expected today. Does not appear post-peak.)  
**29796 MW**

**Tomorrow's Forecast Peak Demand:**  
(Not included on graph)  
**29683 MW**

Information is current as of 01-Jun-2015 08:50.  
browser does not support auto refresh, select reload.

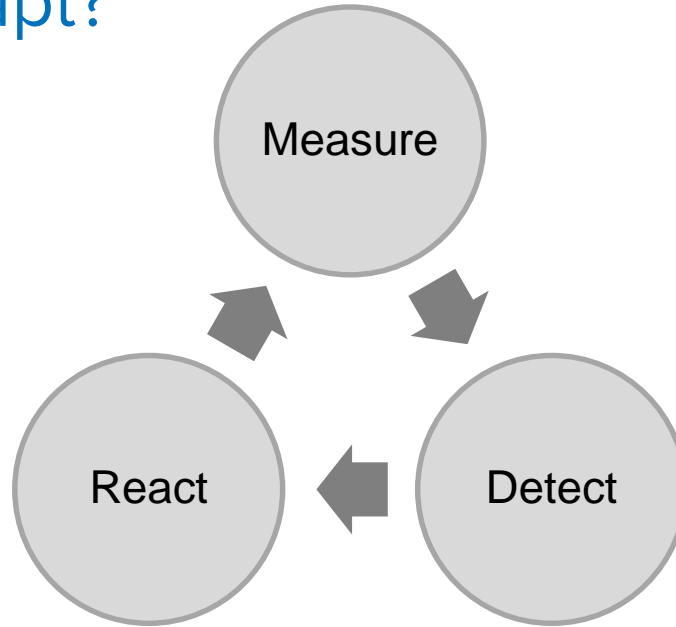




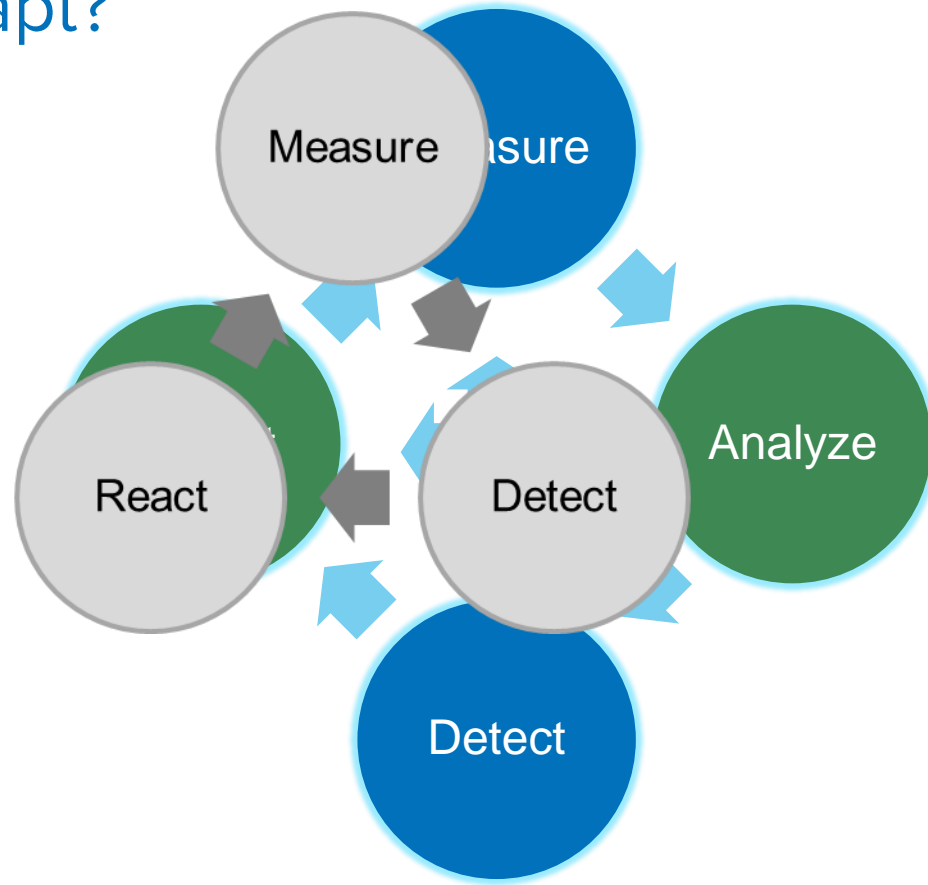
Jeff Parker  
Southwest Power Pool



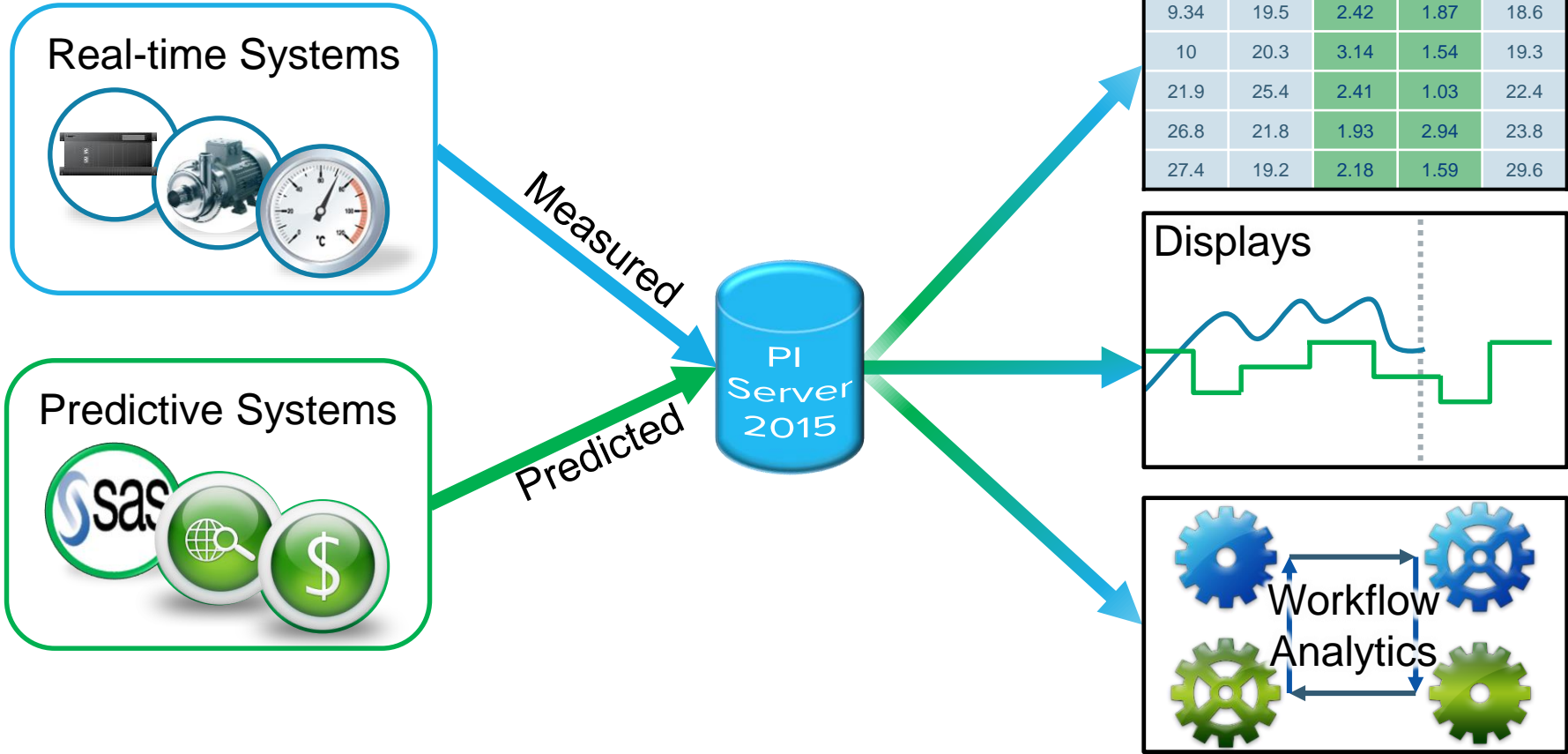
# How Do You Adapt?



# How Do You Adapt?



# Enable a unified infrastructure with PI Server 2015



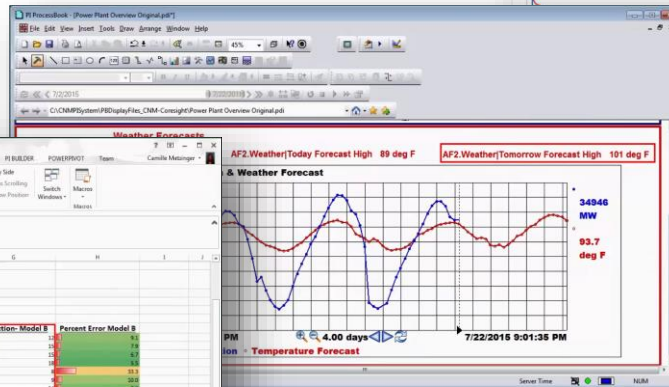
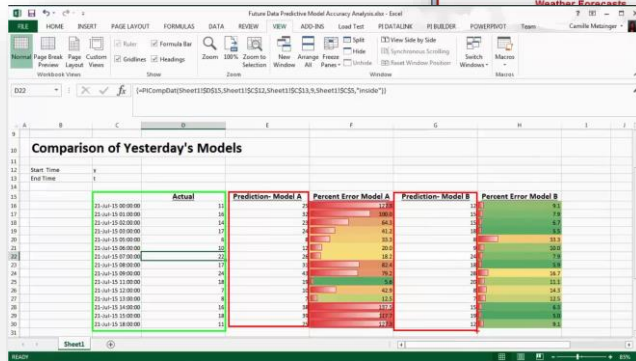


# Visualize historical, real-time, and predictive data system wide

## PI Coresight 2015

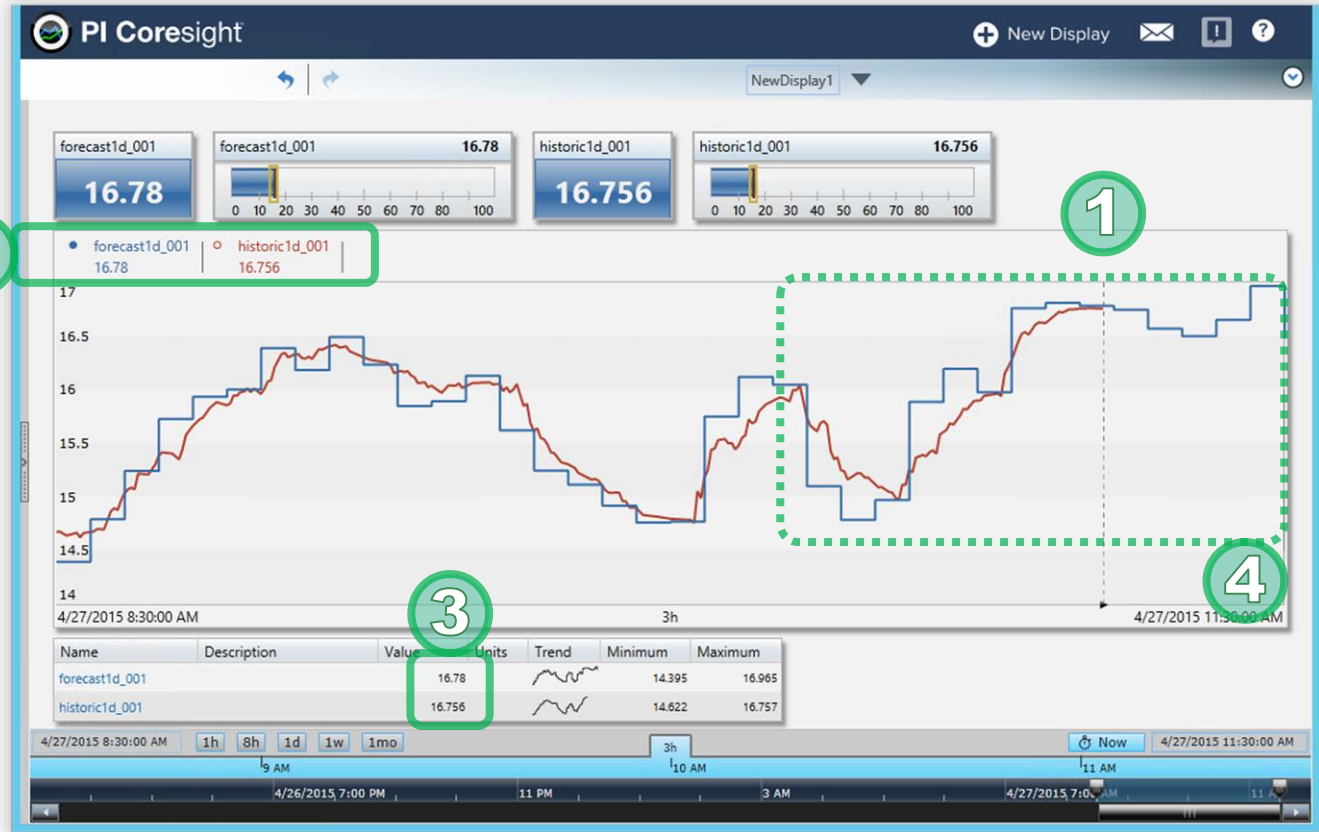
## PI ProcessBook 2015

## PI DataLink 2015





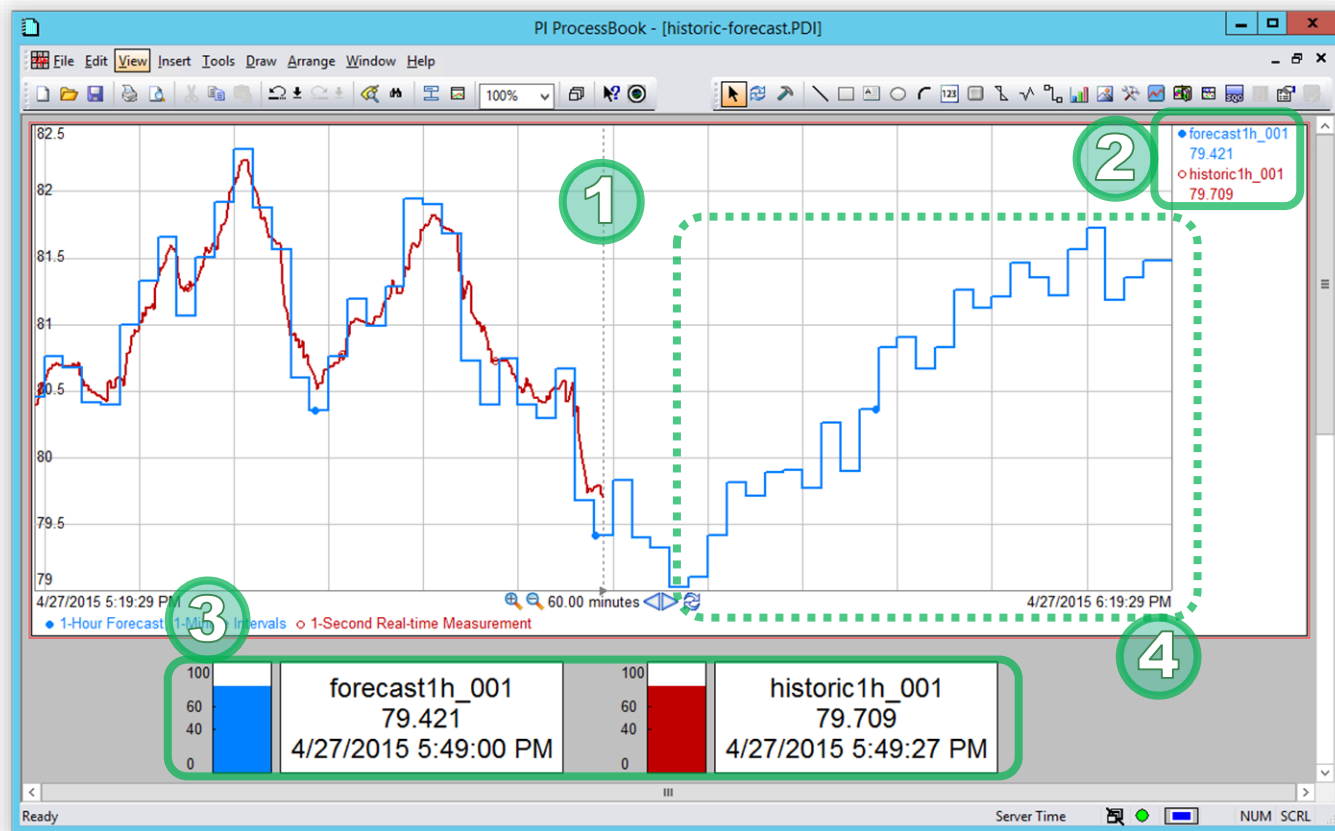
# PI Coresight 2015



1. Now Line
2. Legend Values
3. Symbol Values
4. Live Forecast Updates

# PI ProcessBook 2015

1. Now Line
2. Legend Values
3. Symbol Values
4. Live Forecast Updates



# PI DataLink 2013+

(with AF Client 2015)

historic-forecast.xlsx - Excel

FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW DEVELOPER PI DATALINK PI BUILDER Sign in

Current Value Archive Value Single Value Compressed Data Sampled Data Timed Data Calculated Data Time Filtered Calculation Explore Compare Events Search Asset Filter Properties Update Settings About Help Resources

A1

	A	B	C	D	E
1		historic1h_001	forecast1h_001	delta	
2	26-Apr-15 00:00:00	56.98488235	56.9548378	0.030044556	
3	26-Apr-15 01:00:00	55.08245087	54.34315109	0.739299774	
4	26-Apr-15 02:00:00	54.15202713	53.97742844	0.174598694	
5	26-Apr-15 03:00:00	54.4095192	54.29426956	0.115249634	
6	26-Apr-15 04:00:00	52.48399353	52.25976563	0.224227905	
7	26-Apr-15 05:00:00	56.79501343	56.62767029	0.16734314	
8	26-Apr-15 06:00:00	57.91703033	57.65364456	0.263385773	
9	26-Apr-15 07:00:00	56.29156876	56.13518524	0.156383514	
10	26-Apr-15 08:00:00	52.70926285	52.4973793	0.211883545	
11	26-Apr-15 09:00:00	55.51454544	55.27646637	0.238079071	
12	26-Apr-15 10:00:00	52.72750854	52.77568436	-0.048175812	
13	26-Apr-15 11:00:00	51.06985092	51.23626328	-0.166412354	
14	26-Apr-15 12:00:00	52.99094391	52.84811401	0.142829895	

Timed Data

☒ Data item  
☐ Expression

Root path (optional)

Data item(s)  
Yesterday'ISC\$1

Time stamp(s)  
Yesterday'ISA\$2:\$A\$26

Retrieval mode  
interpolated

Output cell  
Yesterday'ISC\$2

OK Apply

# Collecting Future Data

**PI UFL  
Interface**

From schema or  
column-based text files

**PI HTML  
Interface**

For simple/lightweight  
web data scraping

**PI RDBMS  
Interface**

Via SQL queries against  
relational databases

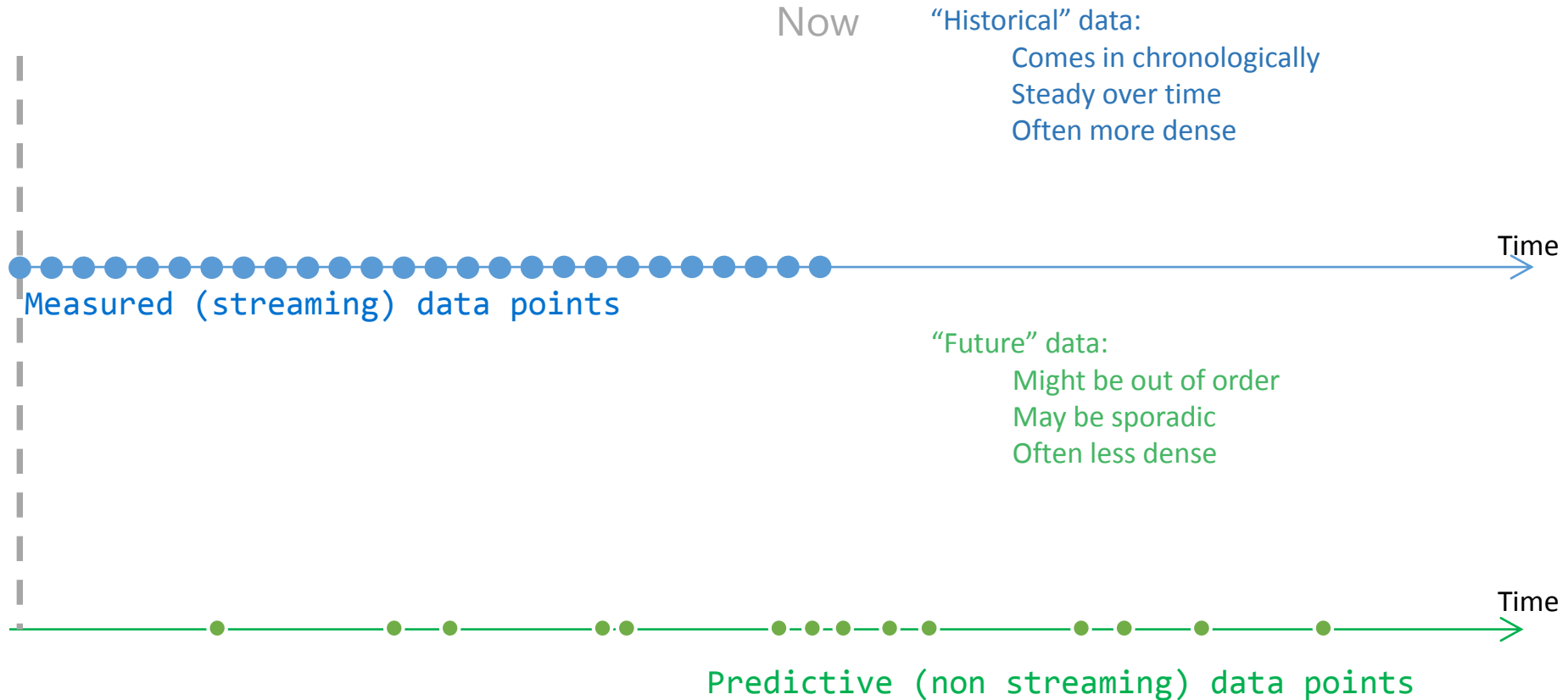
**PI-to-PI  
Interface**

From PI System to  
PI System

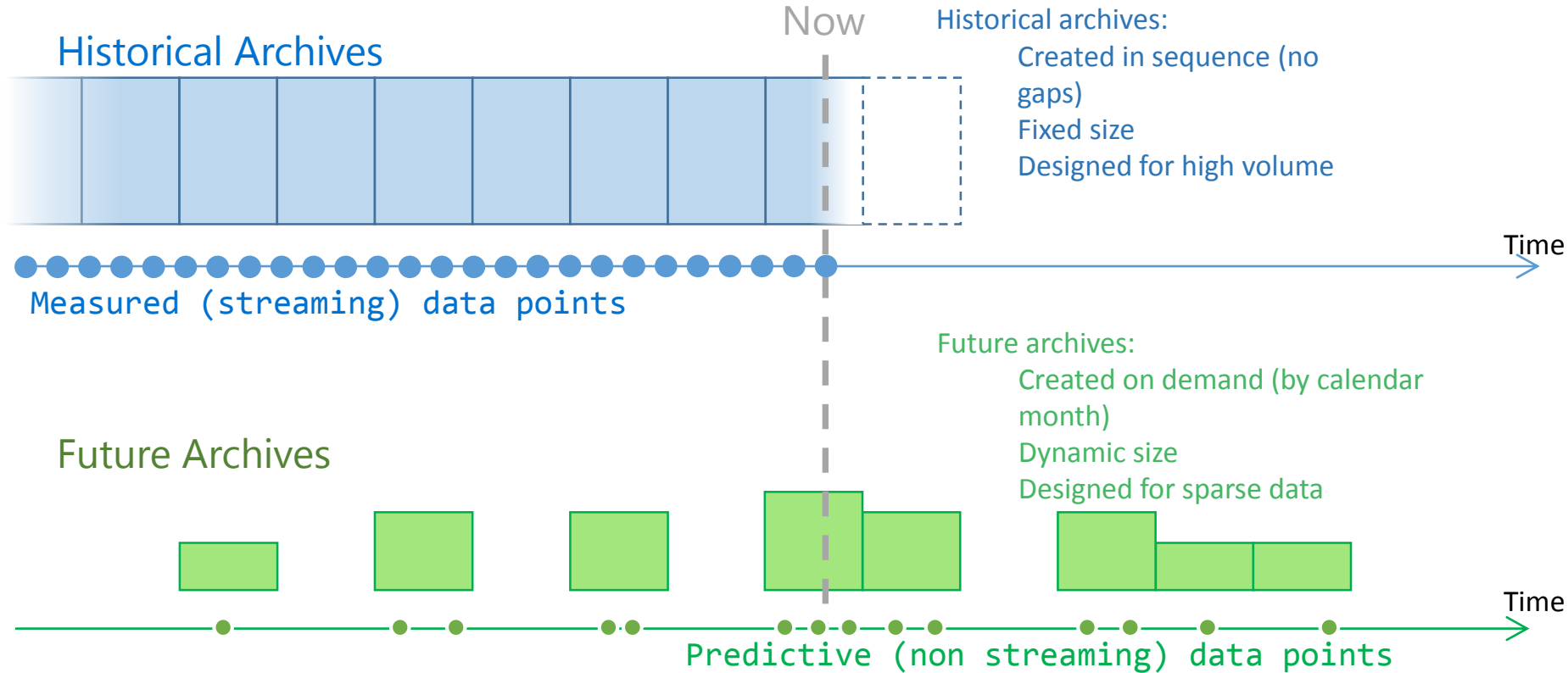
**PI WebAPI,  
PowerShell,  
AF SDK, ...**

Custom application with  
specific logic

# Measured and predicted data behave differently



# Therefore, the archives are optimized differently





# Benefits of PI Server 2015 for Predictive Data

## Flexible Data Architecture



Distinct storage for historical and predictive data gives you options for your retention policies.

## Timely Updates



Get accurate, timely, scalable updates for your predictive data.

## Easy Administration



Automatic file management & point settings means zero configuration and easy monitoring.

## Compatibility



Deploy confidently thanks to low adoption cost and compatibility with existing systems and work-arounds.

# Contact Information

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Systems Engineer

OSIsoft, LLC

# Questions

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



State your  
**name & company**

# Please remember to...

Complete the Survey  
for this session



The **Power of Data**

DECISION READY IN REAL-TIME

## Evaluation Form (Seminar Location - Date)

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Email: \_\_\_\_\_

### Quality and content of the presentations

Poor Good Excellent N/A

Welcome	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Journey To Real-Time Operational Intelligence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Power of Connection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tank Level Management System	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using the PI System to Aid in Troubleshooting Operational Aspects of Oil and Gas Well Drilling and Completion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unleash your Infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information on the Spot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wrap-up/Seminar Conclusion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Quality and organization of the seminar

Choice of date	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time allowed for lunch/breaks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Choice of presentations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Break and time allowed for the presentation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



감사합니다

谢谢

Danke

Merci

Gracias

Thank You

ありがとう

Спасибо

Obrigado

