FactoryTalk Historian Site Edition (SE)

Schaedler yesco

Presented By:
Mike Murphy, Schaedler Yesco
Tim McCain, Rockwell Automation

FactoryTalk Historian Site Edition (SE): Agenda

1. Historian Strategy & Product Introduction
2. Historian Technology Overview
3. Trending & Reporting
4. Calculations, Analytics, & Advanced Features
5. Product Demonstration/Question & Answer

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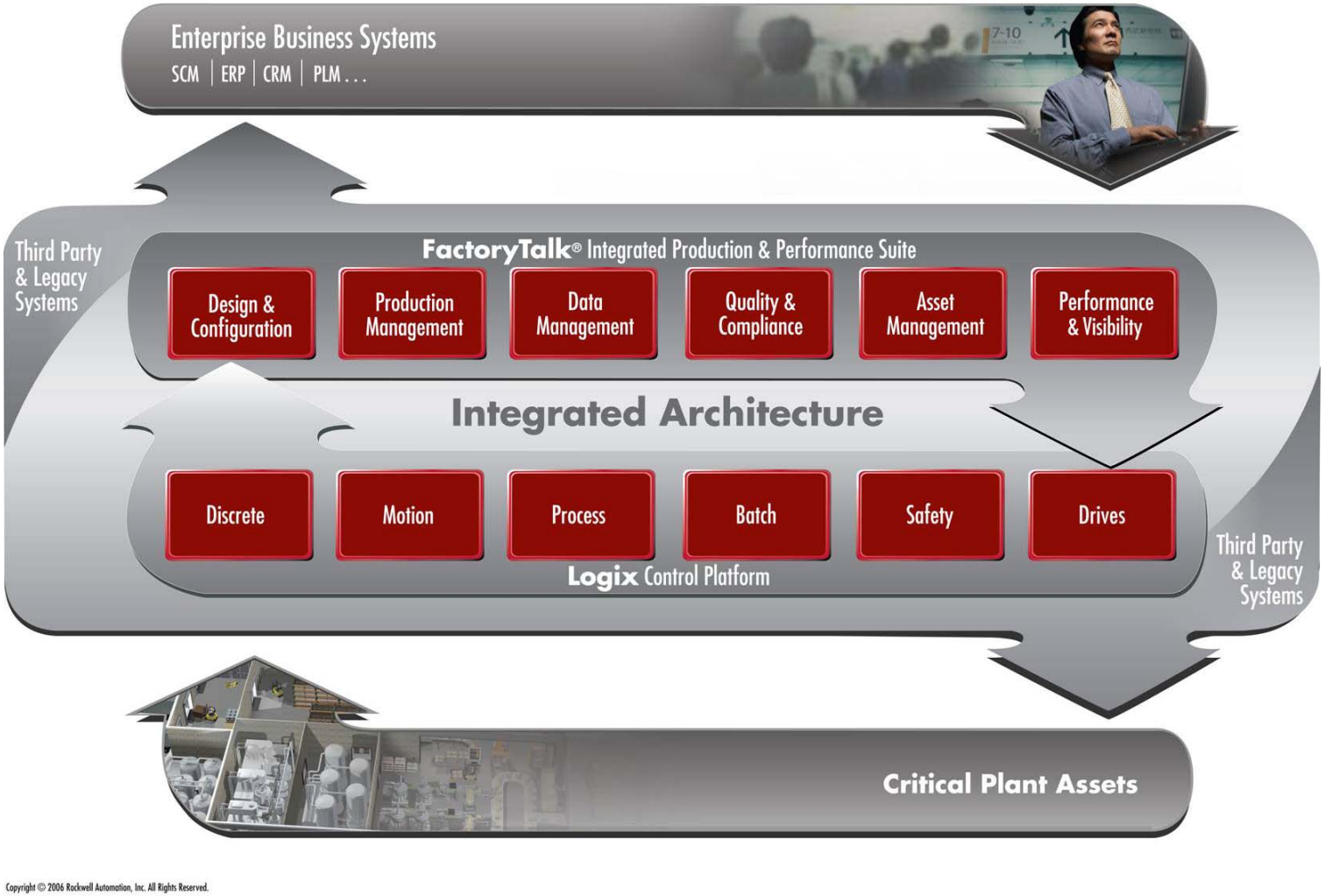
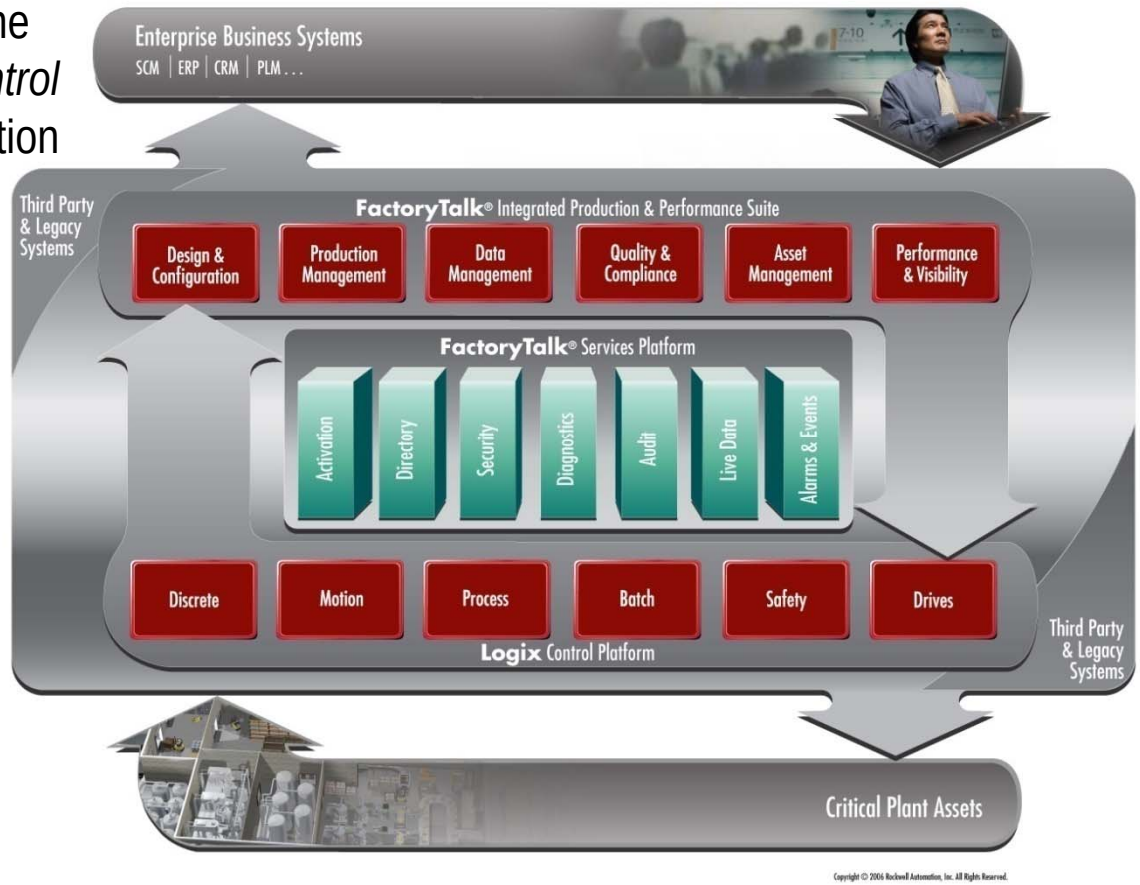
Section 1:
Historian Strategy & Product Introduction

Historian Strategy & Product Introduction: Integrated Architecture Overview



Historian Strategy & Product Introduction: What is FactoryTalk?

- FactoryTalk Products
  - A Suite of products that extends the Integrated Architecture (Logix *Control Disciplines*) to include the Information Layer *(Production Disciplines)*
    - Modular, scalable, and comprehensive
    - 3rd party connectivity and integration



- FactoryTalk Services Platform
  - A service oriented architecture (SOA) that delivers value through FactoryTalk-enabled products
  - Reduces customer learning curve and project engineering time through commonality and reuse

Historian Strategy & Product Introduction: FactoryTalk Services *enabled* Products

	Activation	Directory	Security	Diagnostics	Audit	Live Data	Alarms & Events
FactoryTalk Batch	✓	✓	✓	✓	✓	✓	
FactoryTalk Scheduler	✓	✓	✓				
FactoryTalk ProductionCentre		✓	✓			✓	
FactoryTalk Historian SE	✓	✓	✓	✓	✓	✓	
FactoryTalk Historian Classic	✓	✓	✓	✓	✓	✓	
FactoryTalk Gateway	✓	✓	✓	✓	✓	✓	
FactoryTalk Transaction Manager	✓	✓	✓	✓	✓	✓	
FactoryTalk AssetCentre	✓	✓	✓	✓	✓		
FactoryTalk View ME	✓	✓	✓	✓	✓	✓	
FactoryTalk View SE	✓	✓	✓	✓	✓	✓	✓
FactoryTalk Metrics	✓	✓	✓	✓	✓	✓	
FactoryTalk Portal		✓	✓				
RSView32	✓	✓		✓		✓	
RSLogix 5	✓	✓	✓	✓	✓		
RSLogix 500	✓	✓	✓	✓	✓		
RSLogix 5000	✓	✓	✓	✓	✓		✓
RSLinx Classic	✓	✓	✓	✓		✓	
RSNetWorx	✓			✓			

Historian Strategy & Product Introduction: Automation Fair 2006 Announcement

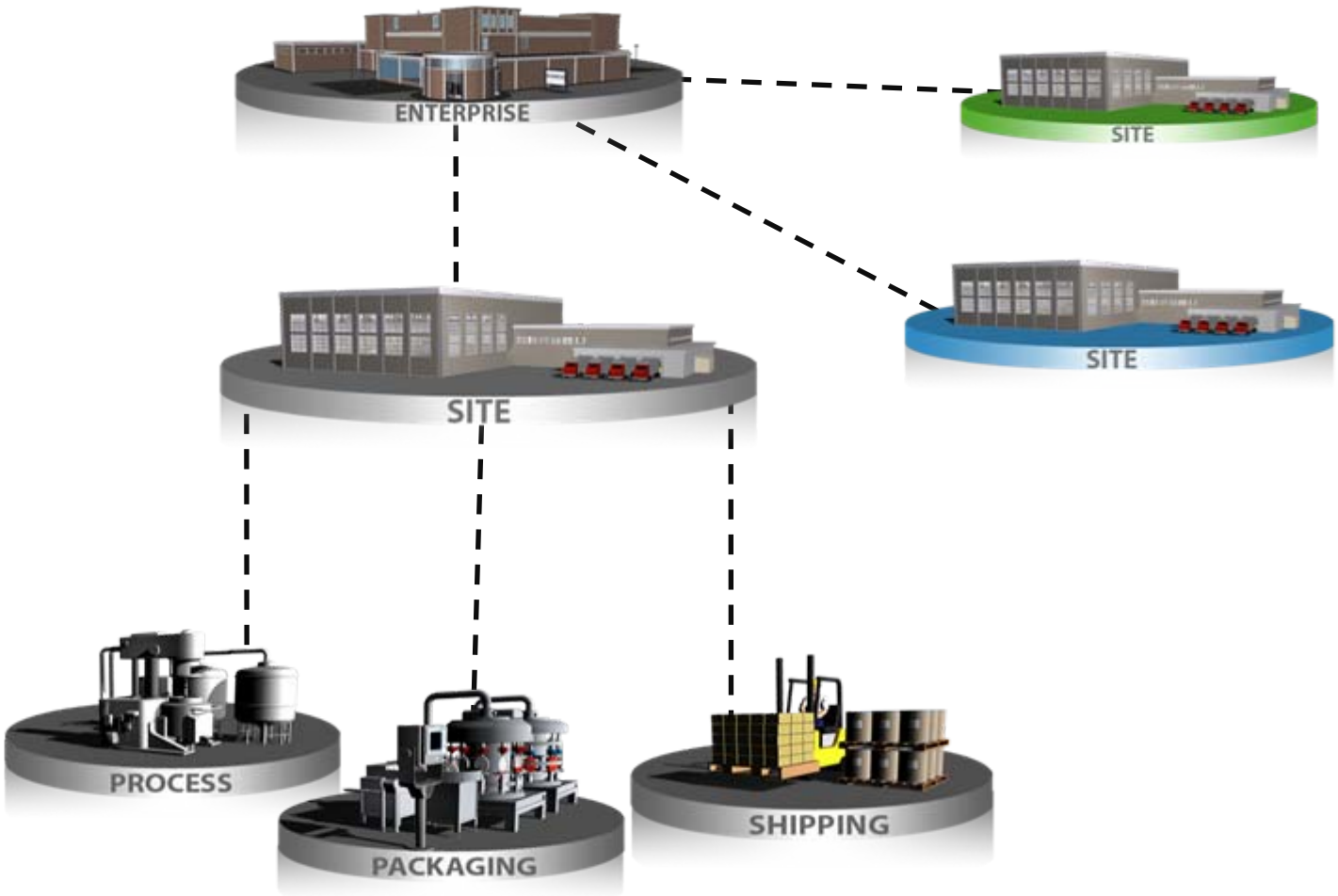
Rockwell Automation Announces OSIsoft Joint Development and Licensing Agreement

BALTIMORE, Oct. 25, 2006 — Rockwell Automation today announced an agreement with OSIsoft Inc. to license and deliver OSIsoft technology within the FactoryTalk integrated production and performance suite. Under the agreement, Rockwell Automation will incorporate the OSIsoft PI System and related components into the FactoryTalk suite

Rockwell Automation

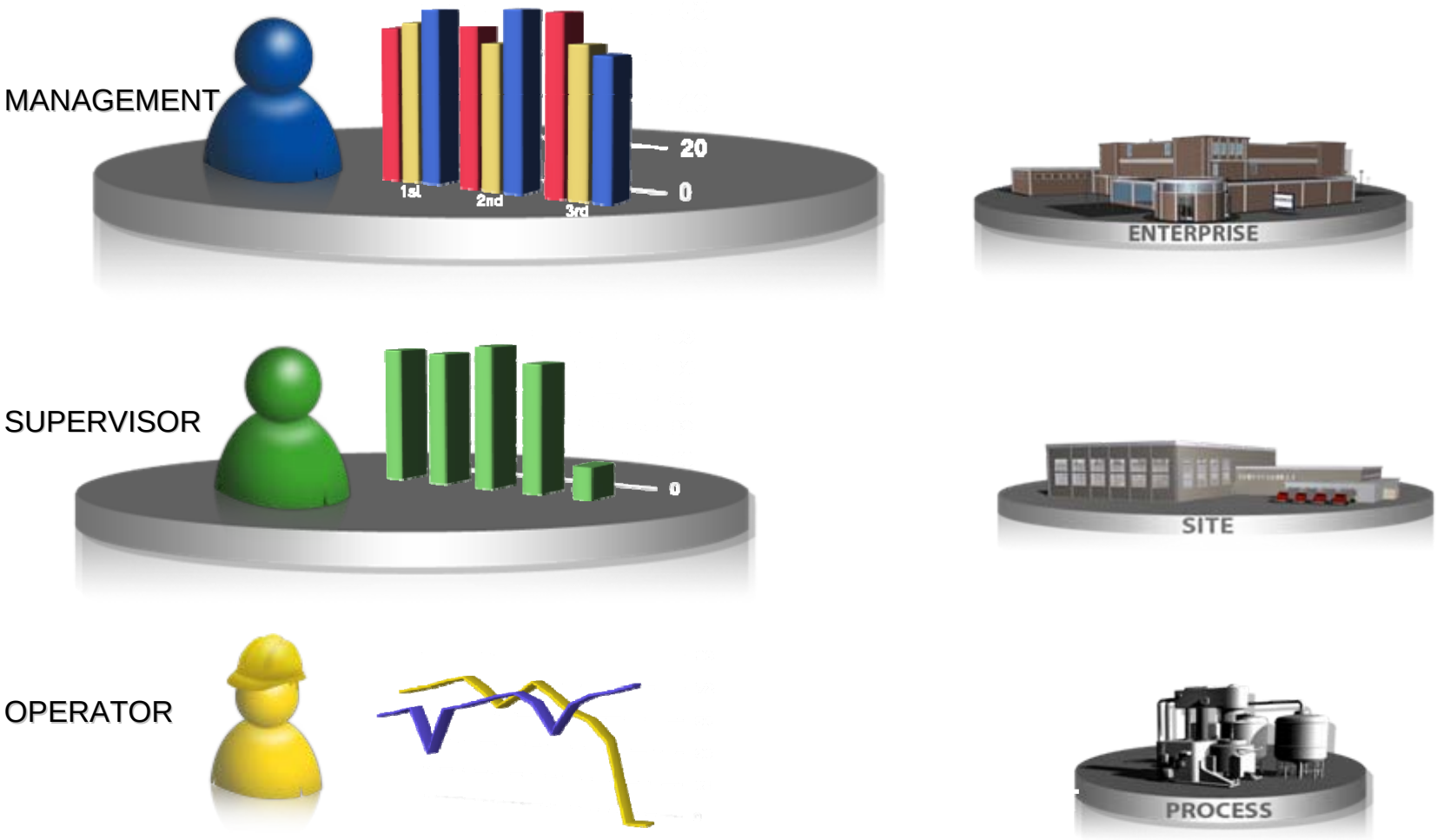
OSIsoft

Historian Strategy & Product Introduction: A New Twist – Distributed Strategy



Pervasive Information Across Enterprise, Site, Machine/Device

Historian Strategy & Product Introduction: A New Twist – Distributed Strategy



Right Information, Right Time, Right Fidelity and Applications…

FactoryTalk Historian: Commercial Availability

Site Edition:

Fall 2007

Machine Edition:

2008 (targeted)

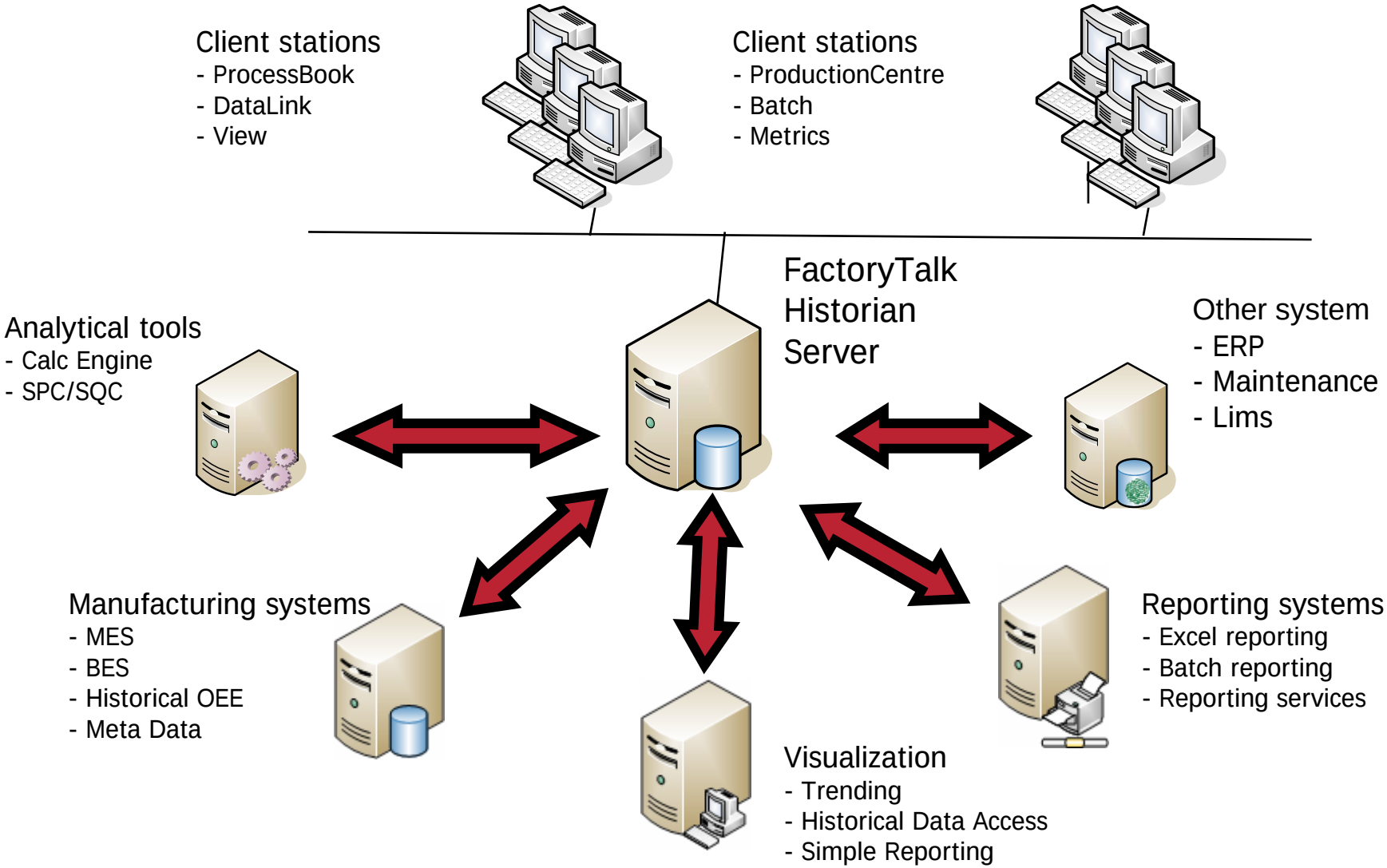
Enterprise Edition:

2008 (targeted)

FactoryTalk Historian Classic

- Summer 2007- Formerly RSBizWare Historian
- Commercial Upgrade Program

Historian Strategy & Product Introduction: FactoryTalk Historian Site Edition



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Section 2:
Historian Technology Overview

Historian Technology Overview: New Technology

Some of the differentiators

- Easy install and configuration
  - Auto discover controllers and tags,
  - Auto configure known tag types
- Time series optimized database
  - Not a relational database
- Calculation Engine
  - Performance Equations, Totalizers and Advanced Computation Engine
- Tight integration to FactoryTalk
  - Live Data and Directory, Security and Activation, Audit and Diagnostics
  - FactoryTalk View trending and integration

Historian Technology Overview: New Technology

Further differentiators

- Event framing of time series data
- Rich set of clients – including SQC and Batch
- Redundancy and High Availability
- Scalability
- Rich 3rd party connectivity

Historian Technology Overview: Ease of Configuration

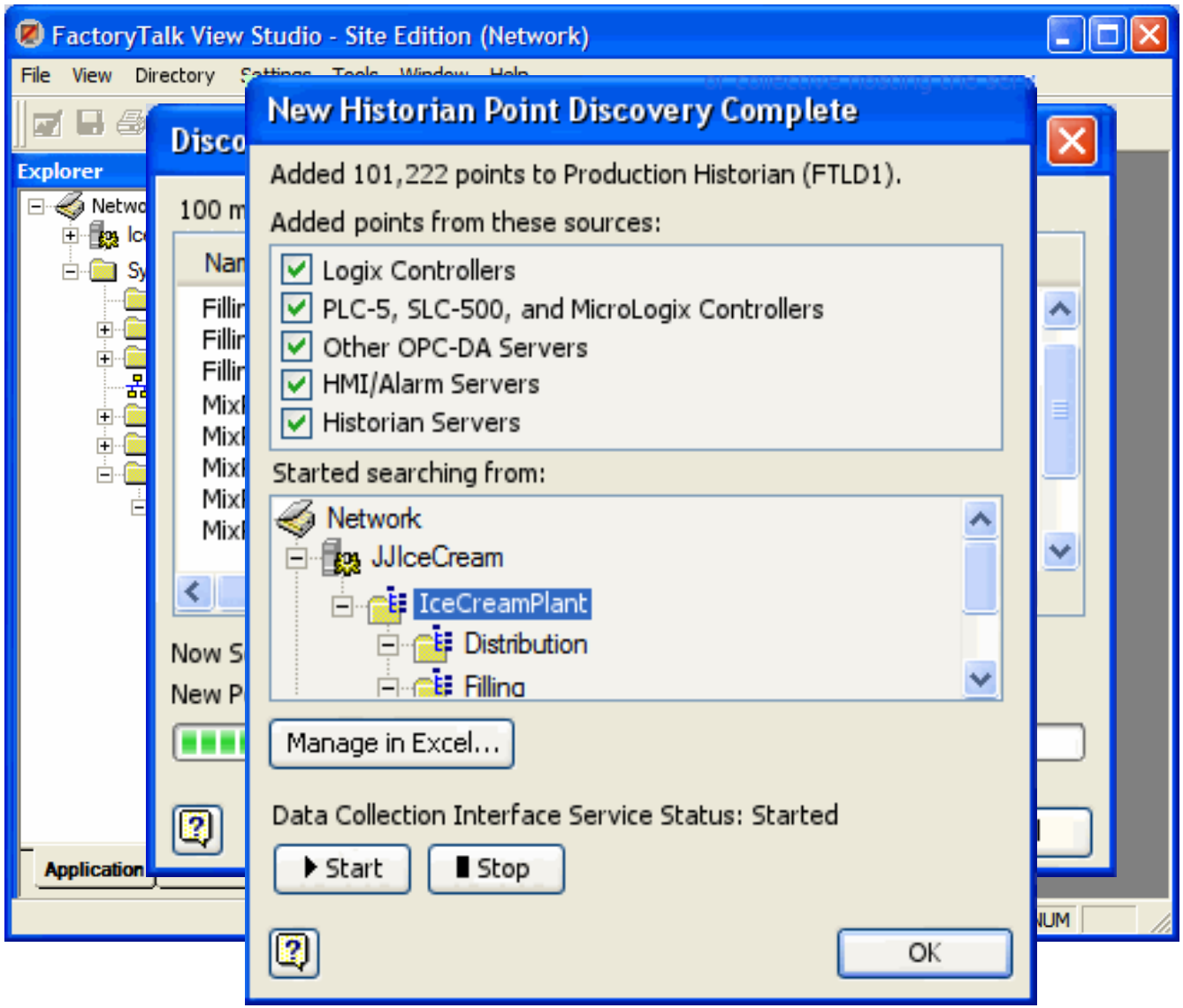
Common tools

- FactoryTalk Admin Client
- FactoryTalk View Studio

Auto discover / Auto configure

- No need to know the controller names/address or the tags inside
- Auto discover controllers in the name space
- Auto configure tags based on templates

Historian Technology Overview: Ease of Configuration

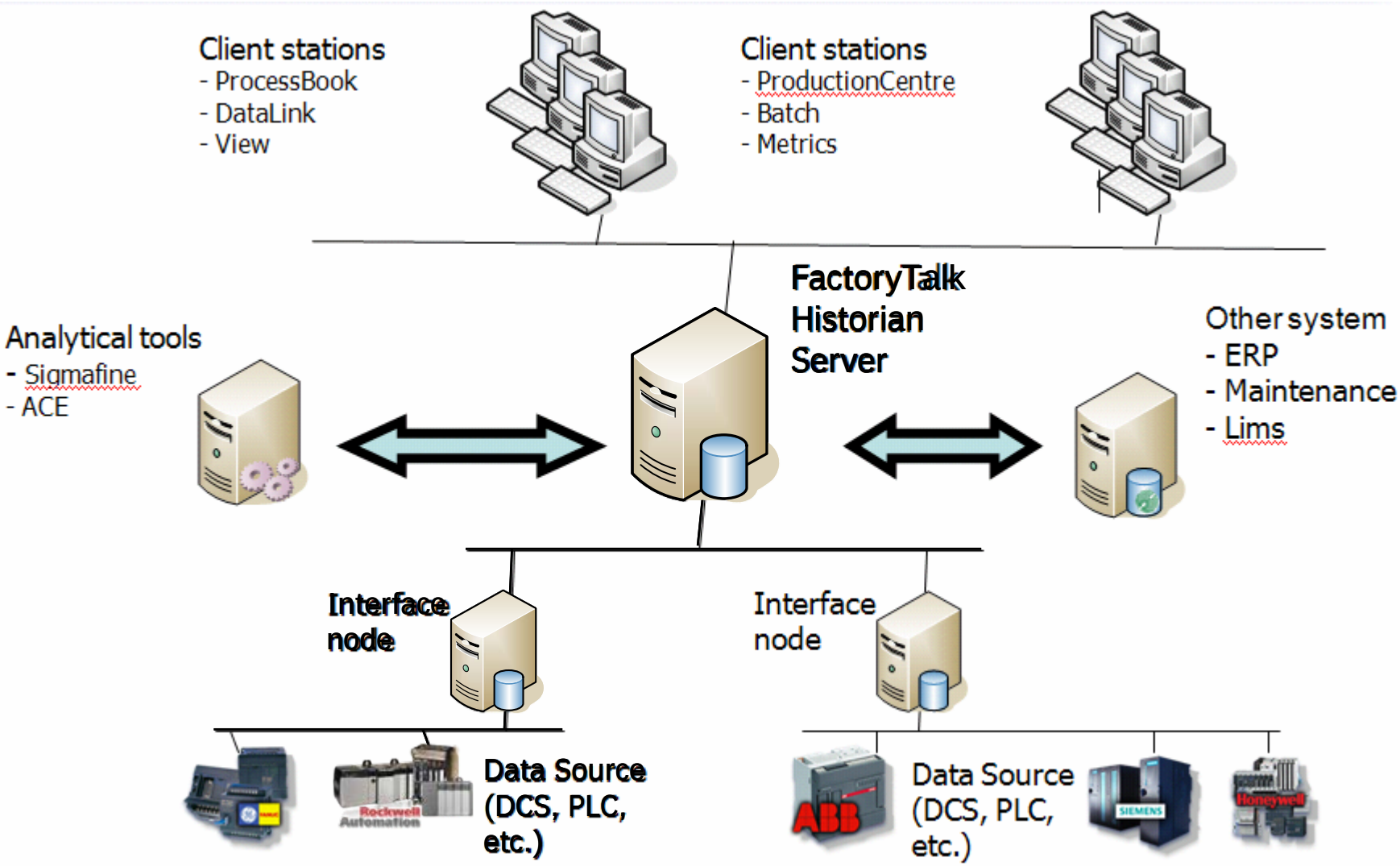


Historian Technology Overview: Ease of Configuration

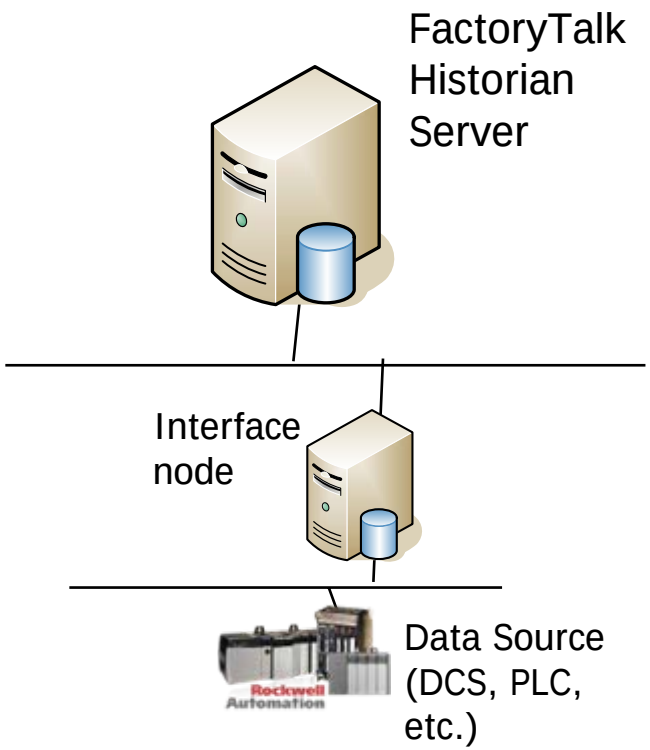
Auto Configure based on simple and easy to configure rules:

- If server type is Linx Enterprise or classic, search all shortcuts (controllers)
- <LogixControllerPointRules>
- If shortcut points to any type of Logix controller, use these (sample) rules
- <Rule Name="*.ACC" />
- All timers and counters
- <Rule Name="*.PV" />
- All PV's in PID instructions
- <Rule Name="*.SP" />
- All SP's in PID instructions
- </LogixControllerPointRules>
- - <OtherABControllerPointRules>
- If shortcut points to a PLC-5, SLC-500 or Micro, use these (sample) rules
- <Rule Name="*.ACC" />
- All timers and counters
- <Rule Name="F*.*" />
- All floats
- <Rule Name="N*.*" />
- All integers
- <Rule Name="*.PV" />
- All Process Variables
- </OtherABControllerPointRules>

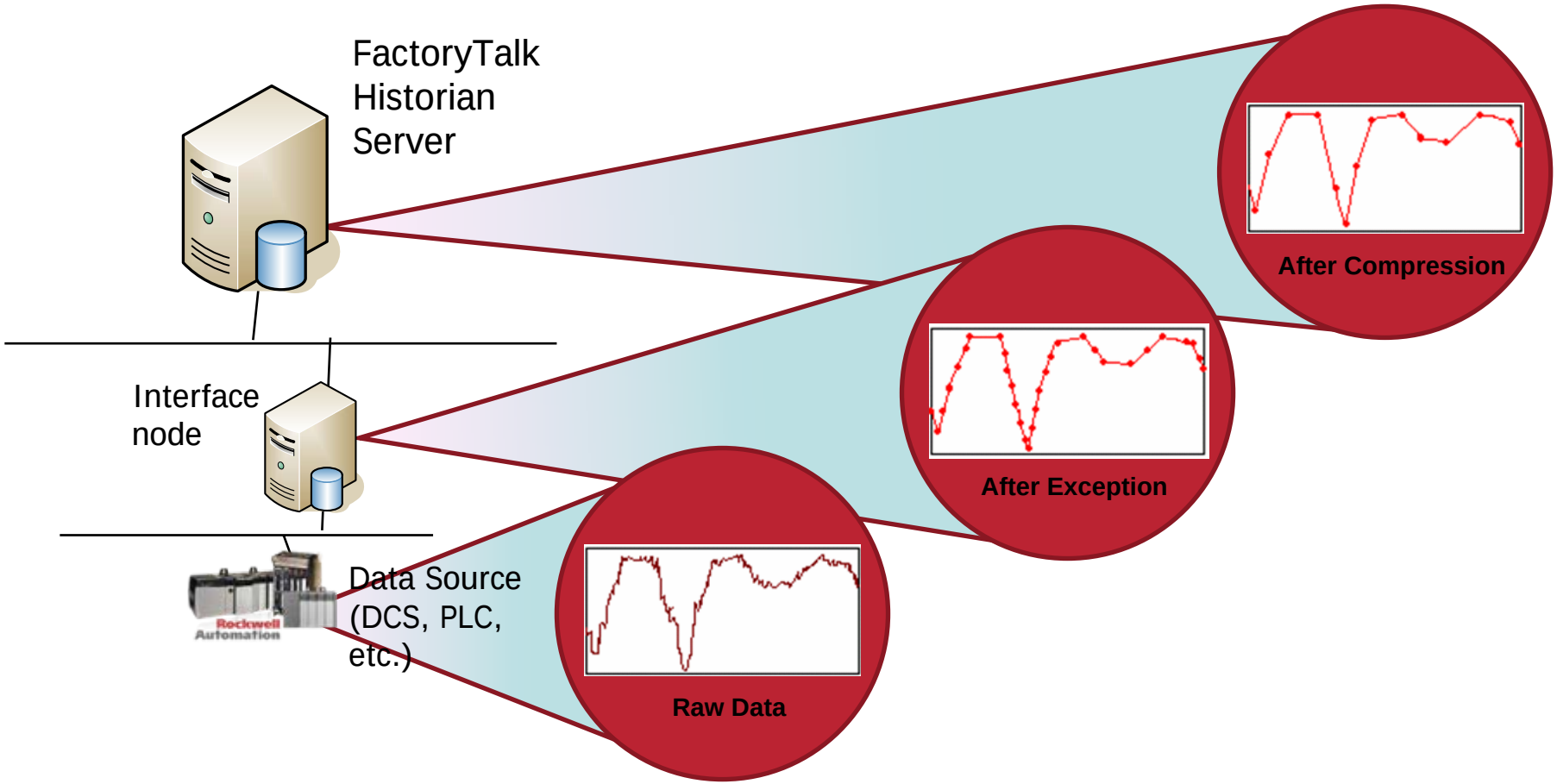
Historian Technology Overview: Time series optimized Data store



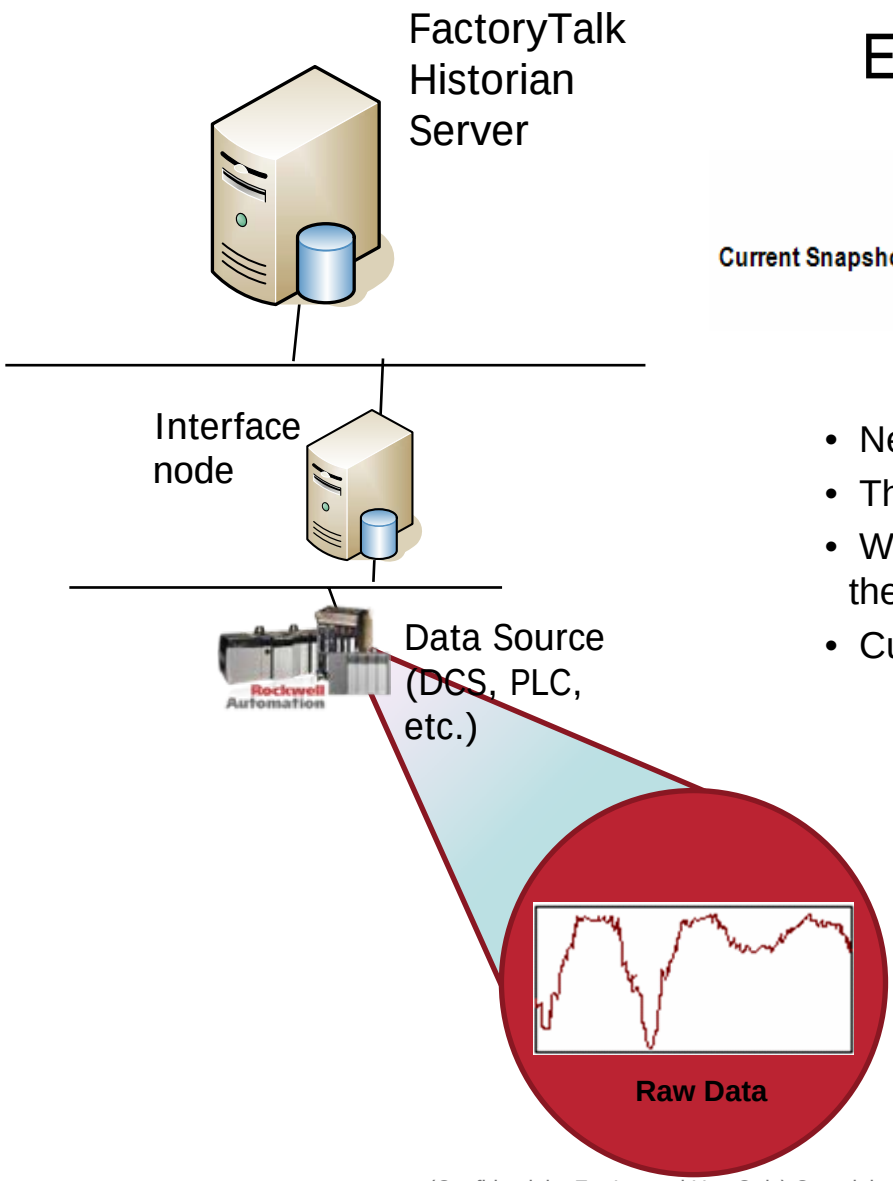
Historian Technology Overview: Time series optimized Data store



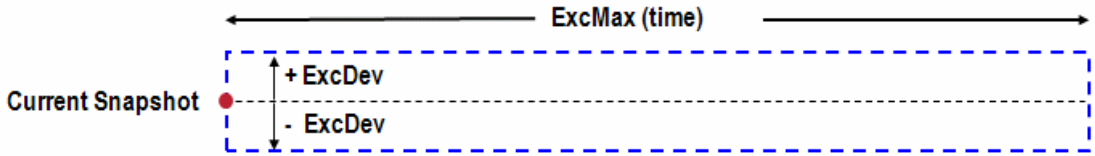
Historian Technology Overview: Time series optimized Data store



Historian Technology Overview: Filtering – Exception Test

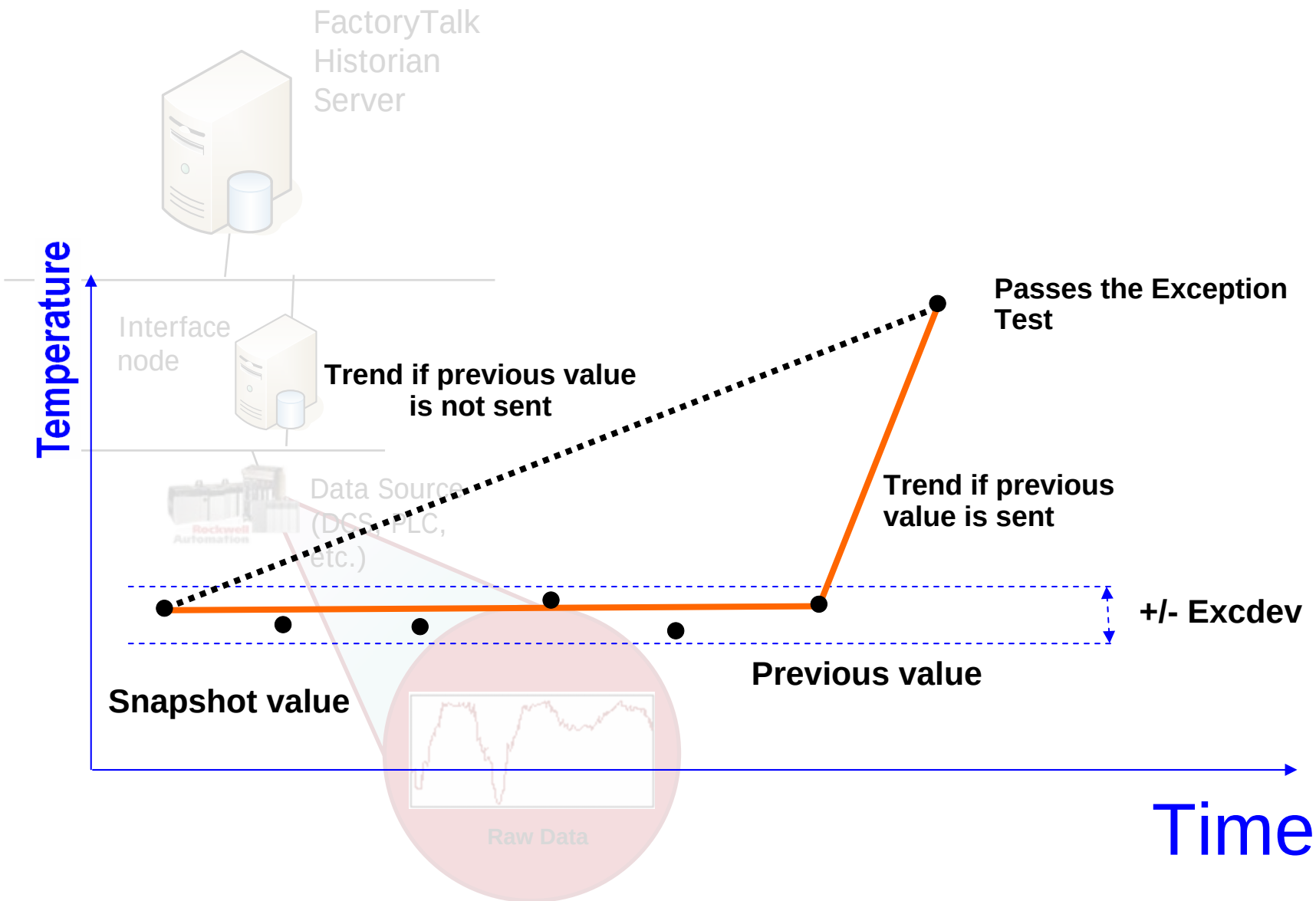


Exception Test:

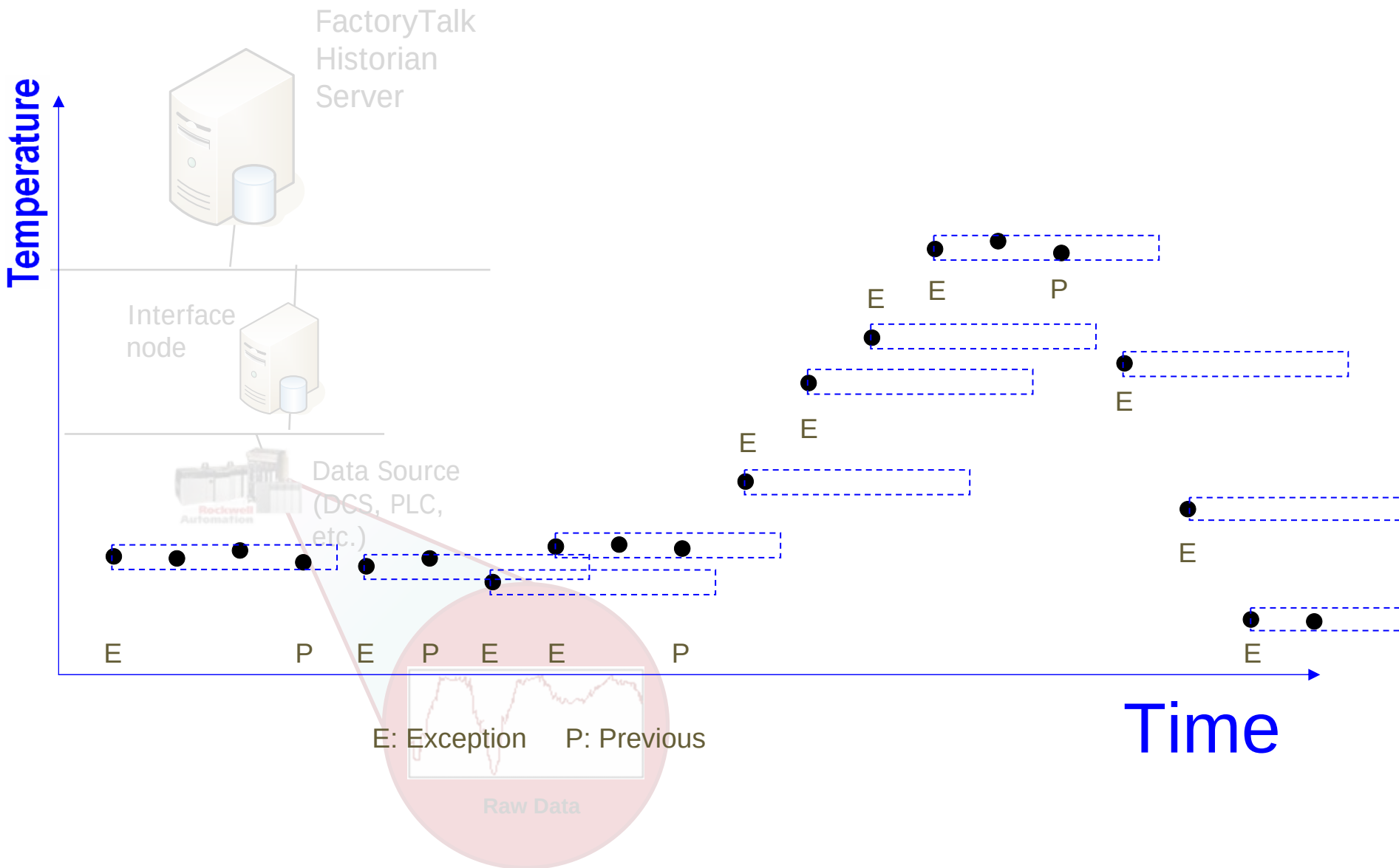


- New values outside the box violate the Exception Test.
- The Exception Test is performed by the interface.
- When a value violates the Exception Test, this value and the previous one are sent to the Historian Server.
- Currently defaults to 1% of span.

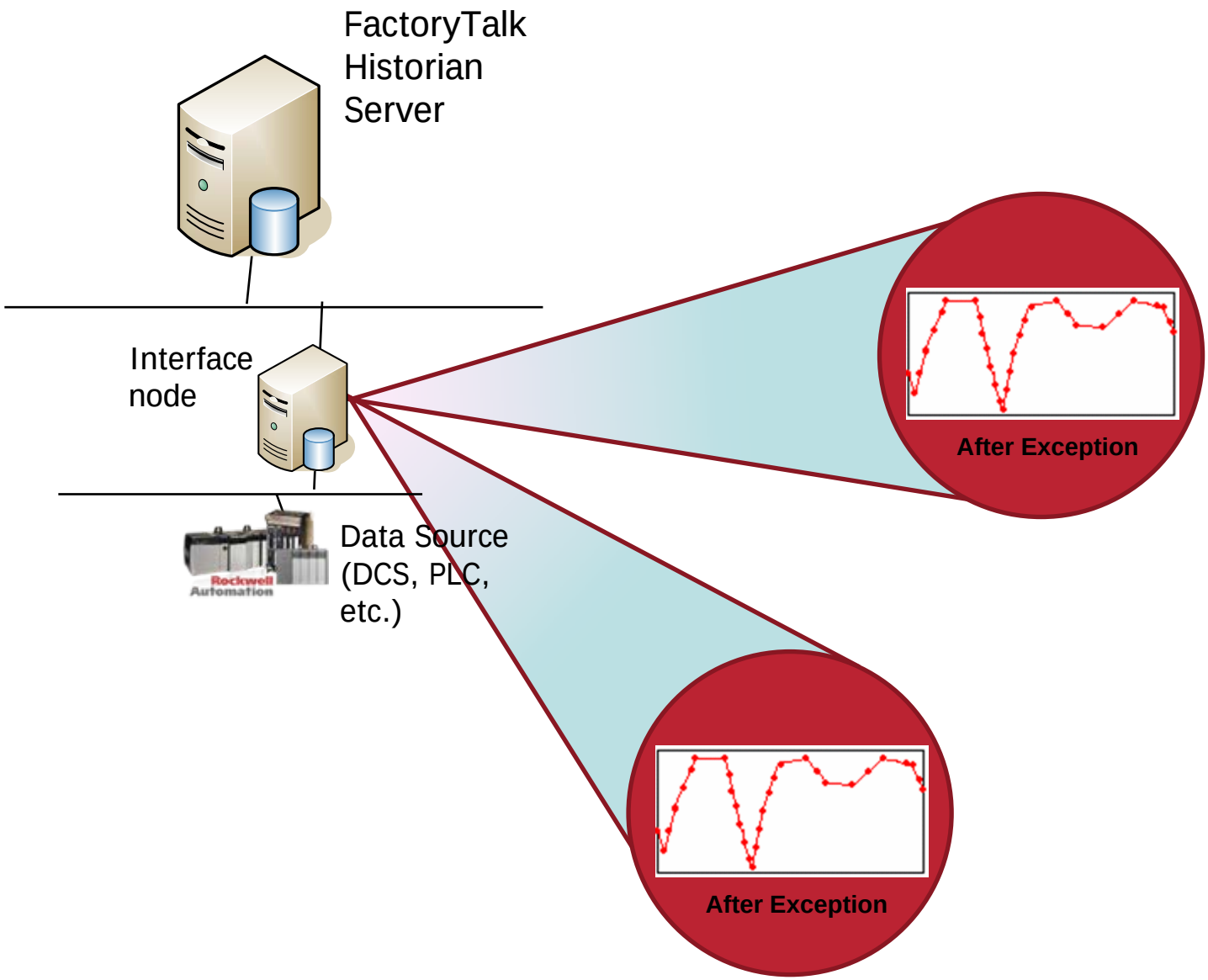
Historian Technology Overview: Filtering – Exception Test



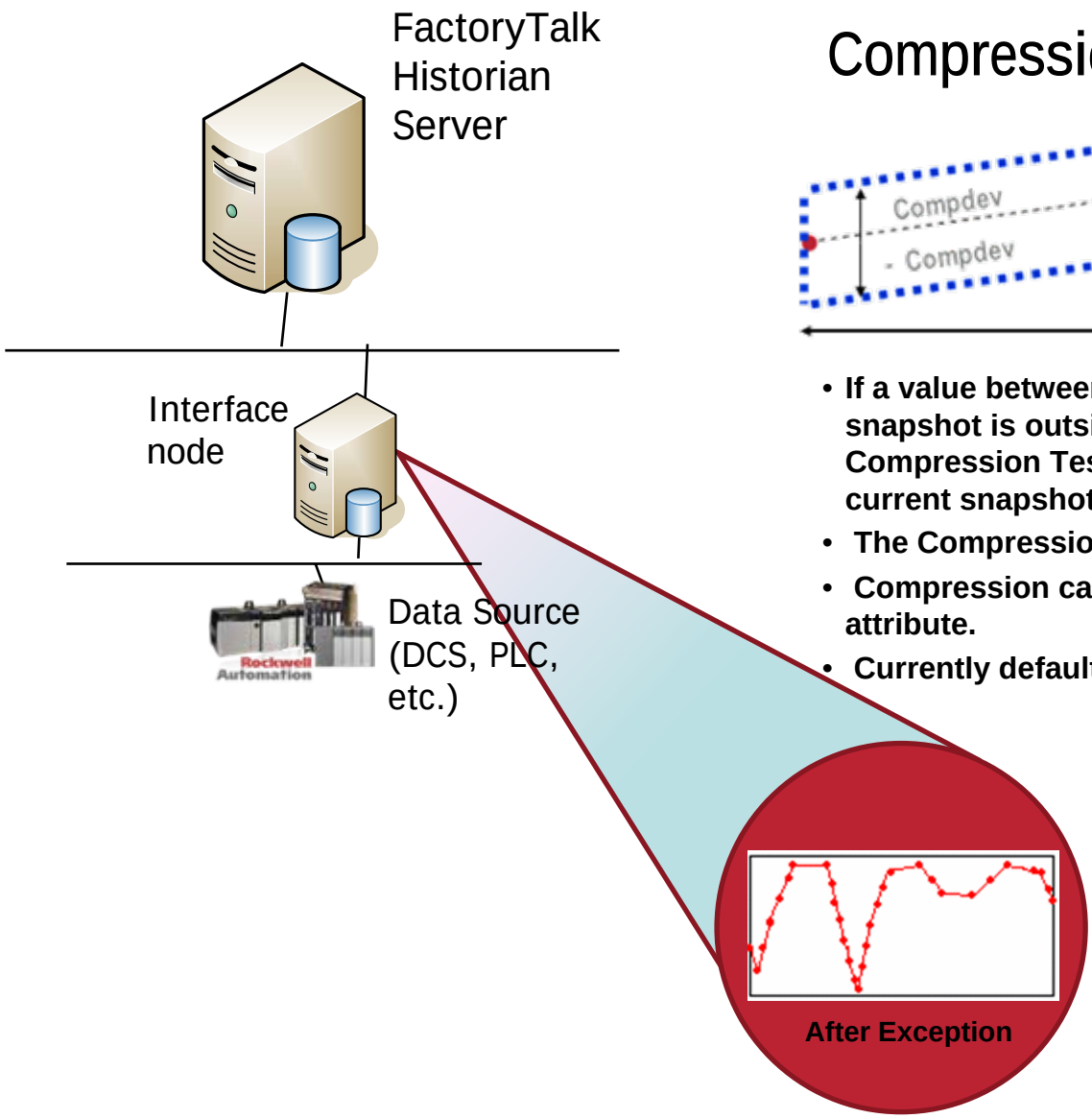
Historian Technology Overview: Filtering – Exception Example



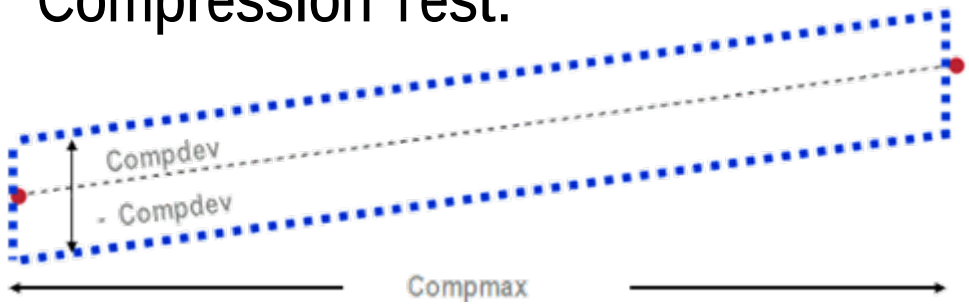
Historian Technology Overview: Filtering – After Exception



Historian Technology Overview: Filtering – Compression Test



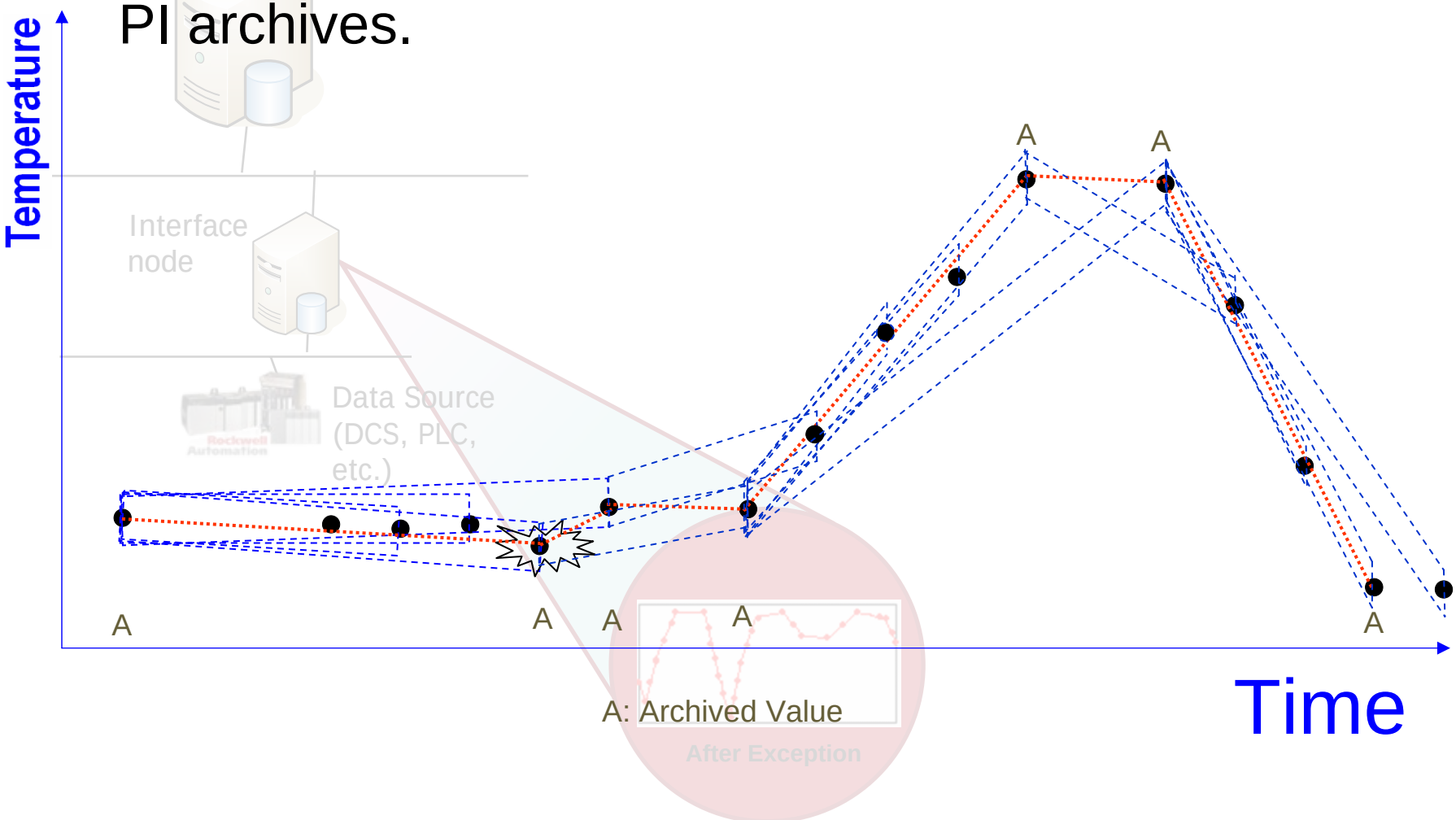
Compression Test:



- **If a value between the last archive event and the current snapshot is outside the box, the current snapshot violates the Compression Test. In this case, the value preceding the current snapshot will be archived.**
- **The Compression Test is done by the Historian Server.**
- **Compression can be turned off with the Compressing attribute.**
- **Currently defaults to 2% of span.**

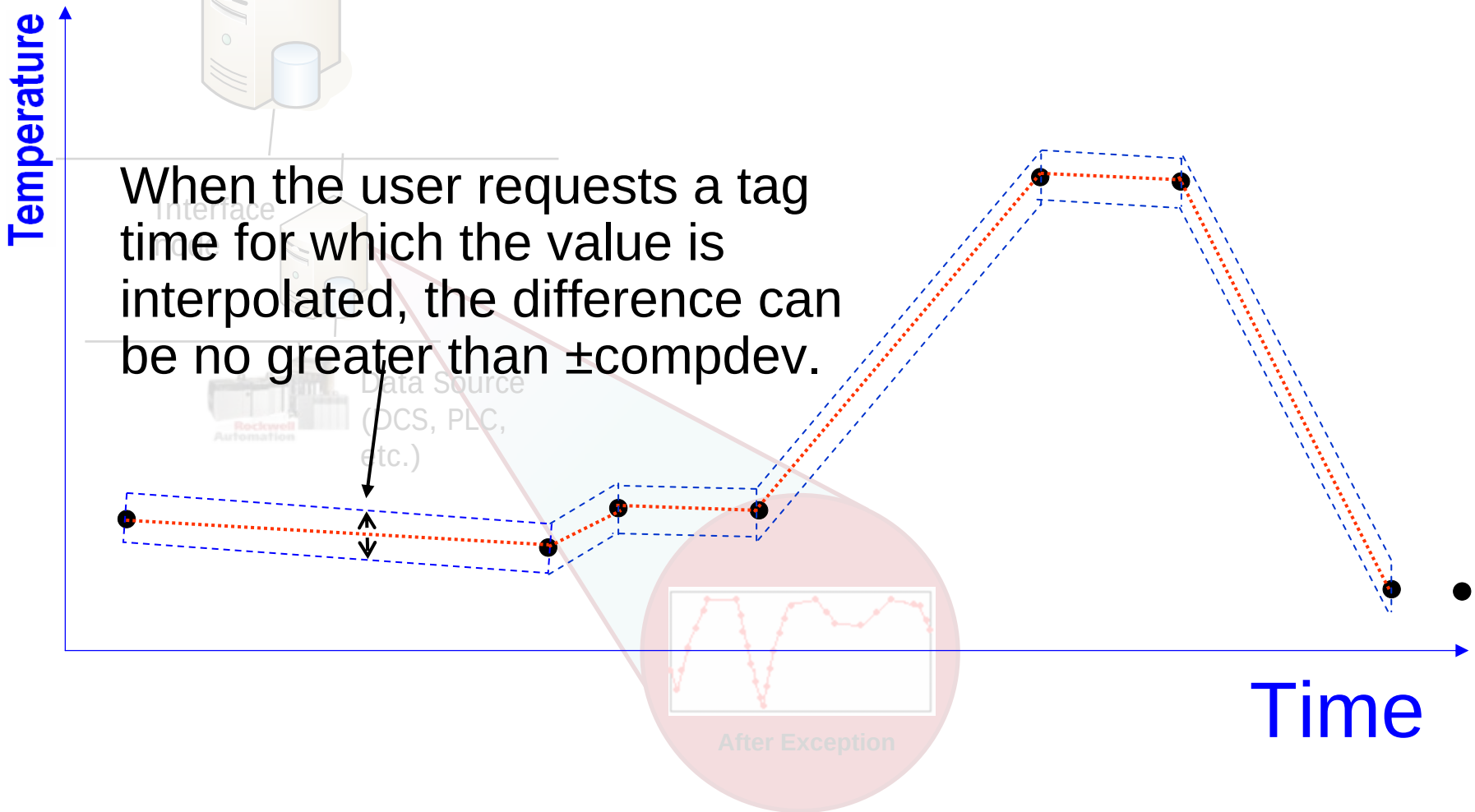
Historian Technology Overview: Filtering – Compression Example

The compression algorithm is performed on new snapshots to determine which data is kept in the PI archives.



Historian Technology Overview: Filtering – Compression Result

Values kept in the PI archives

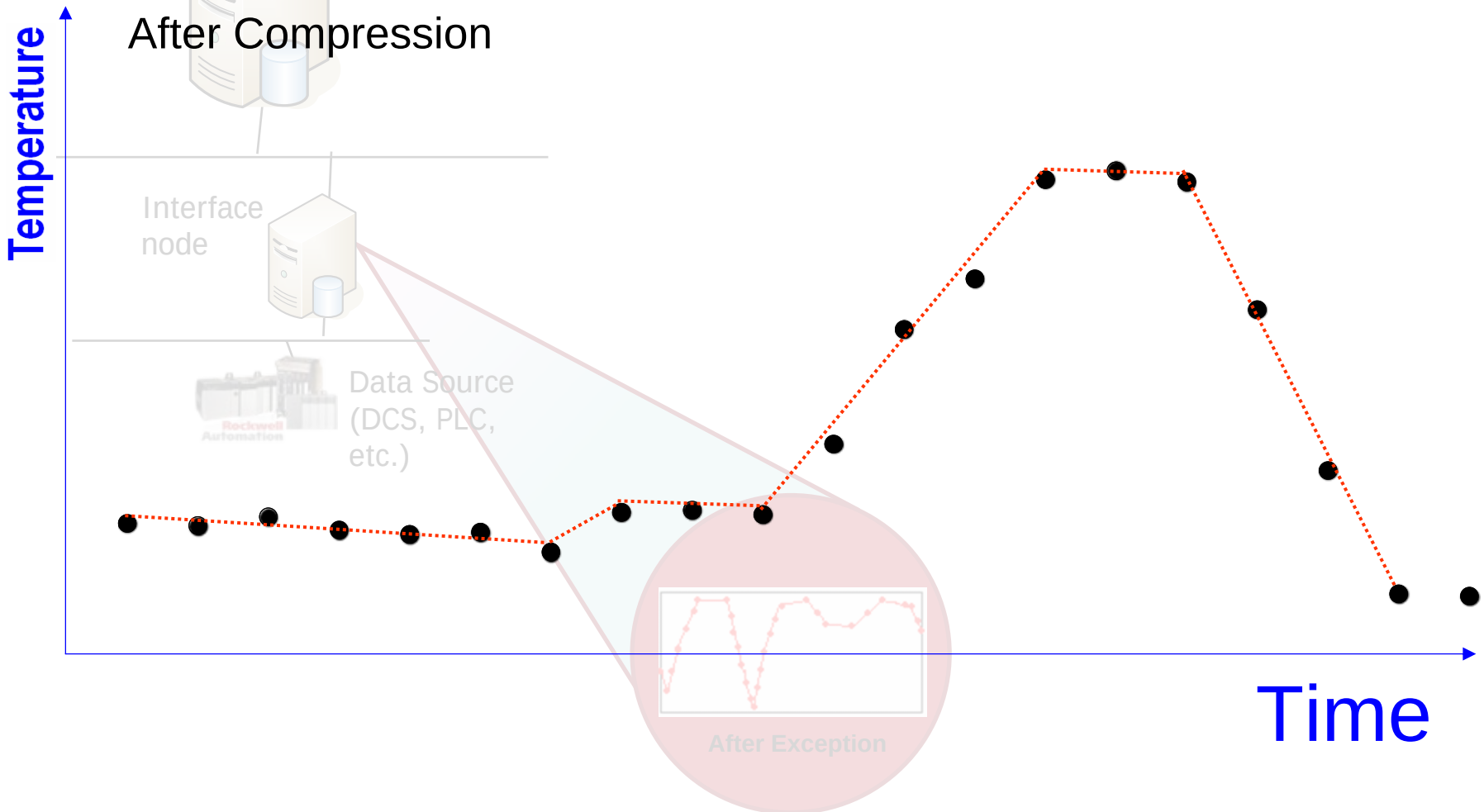


Historian Technology Overview: Filtering – Compression Results

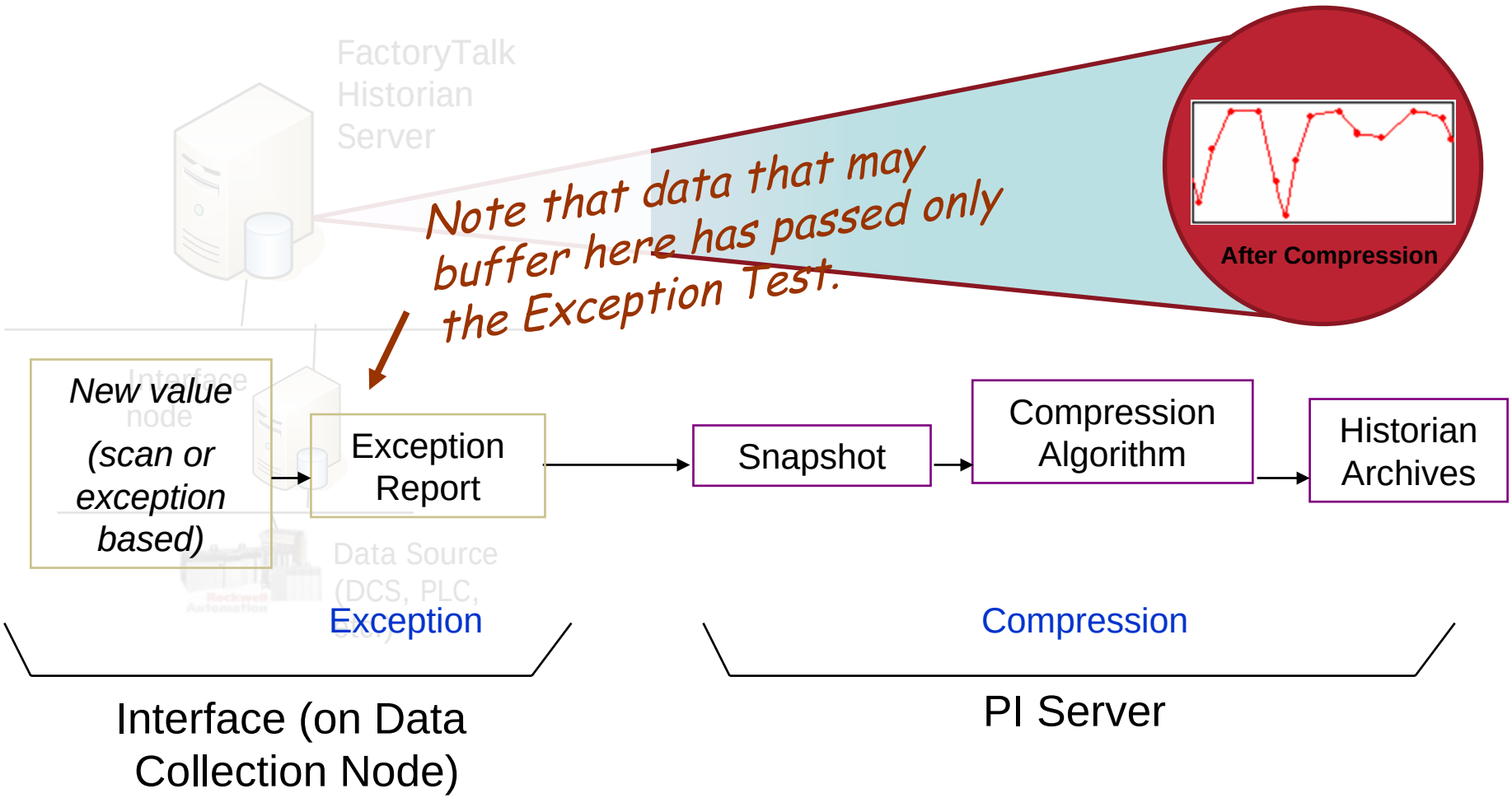
- Raw values scanned

After Exception

After Compression



Historian Technology Overview: Time series optimized Data store



Historian Technology Overview: 3rd Party connectivity

- OPC DA, OPC HDA, OPC A&E
- OPC thru Live Data (Kepware)
- 450+ Native connectors from OSIsoft

- These and including open Data Access connectors to the Historian
  - OLEDB
  - ODBC

- Rich 3rd party connectivity …

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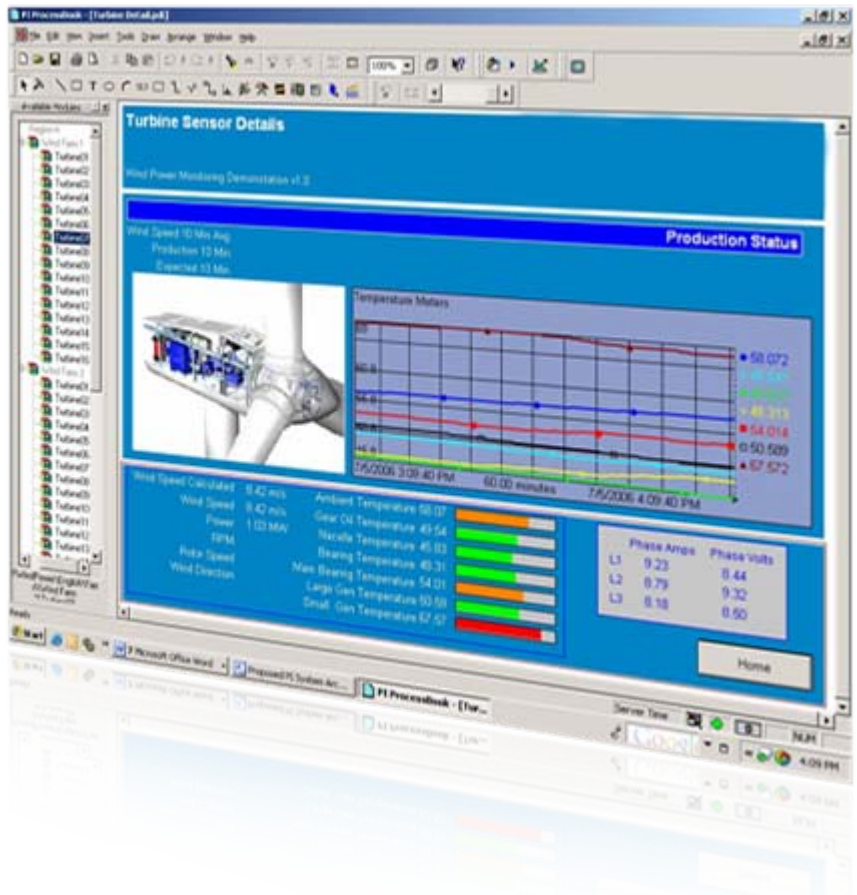
Section 3:
Trending & Reporting

Trending and Reporting: FactoryTalk Historian SE Capabilites

- FactoryTalk View Integration
- Advanced Excel Add-in for the Historian
- FactoryTalk Historian ProcessBook
  - for Analytics
  - as Authoring tool for View ProcessBook Add-in
- Other advanced clients such as BatchView
  - for Event framing
  - Including Batch events

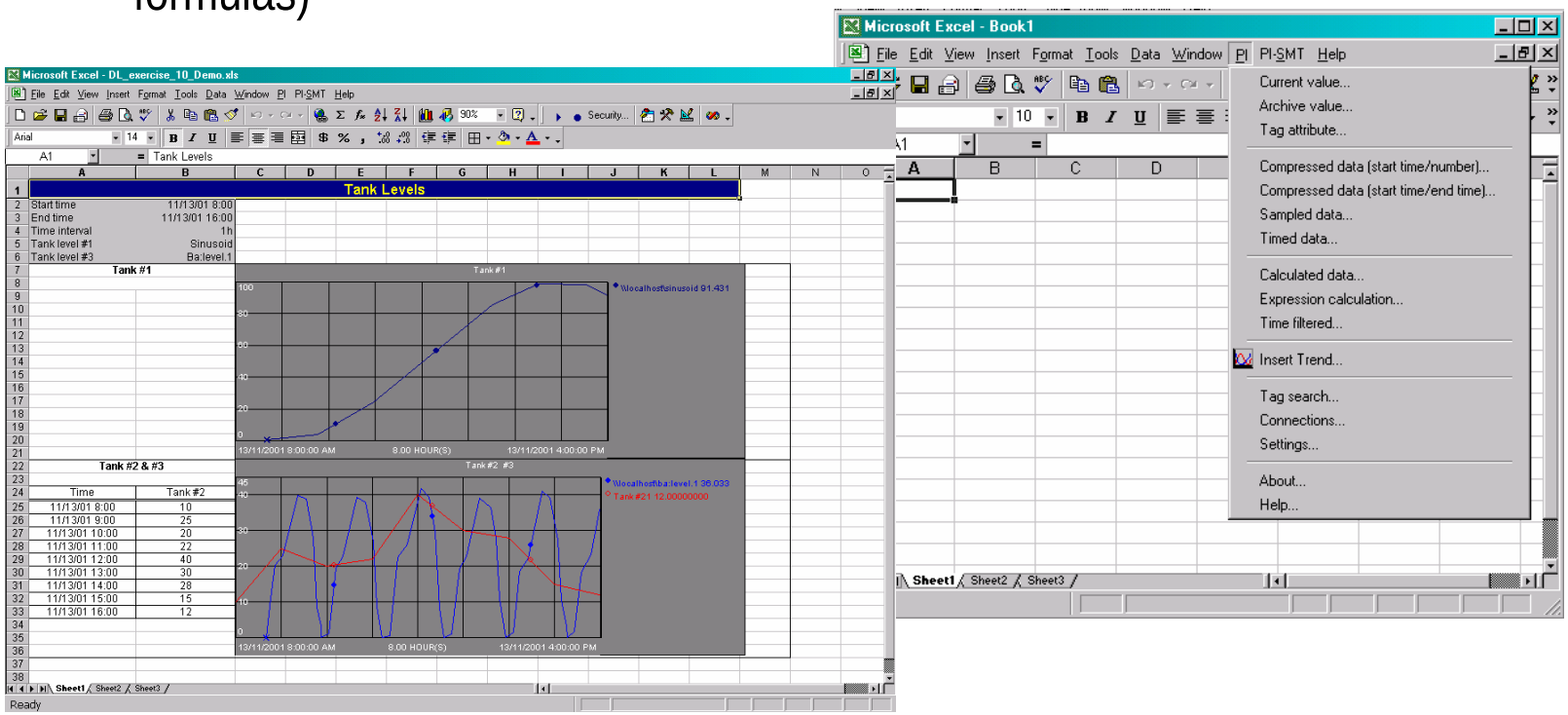
Trending and Reporting: Visualization Integration

- FactoryTalk View Integration
  - Trending of historical data
  - Very fast retrieval of data
    - Extend trends from days, months, years, without speed degradation



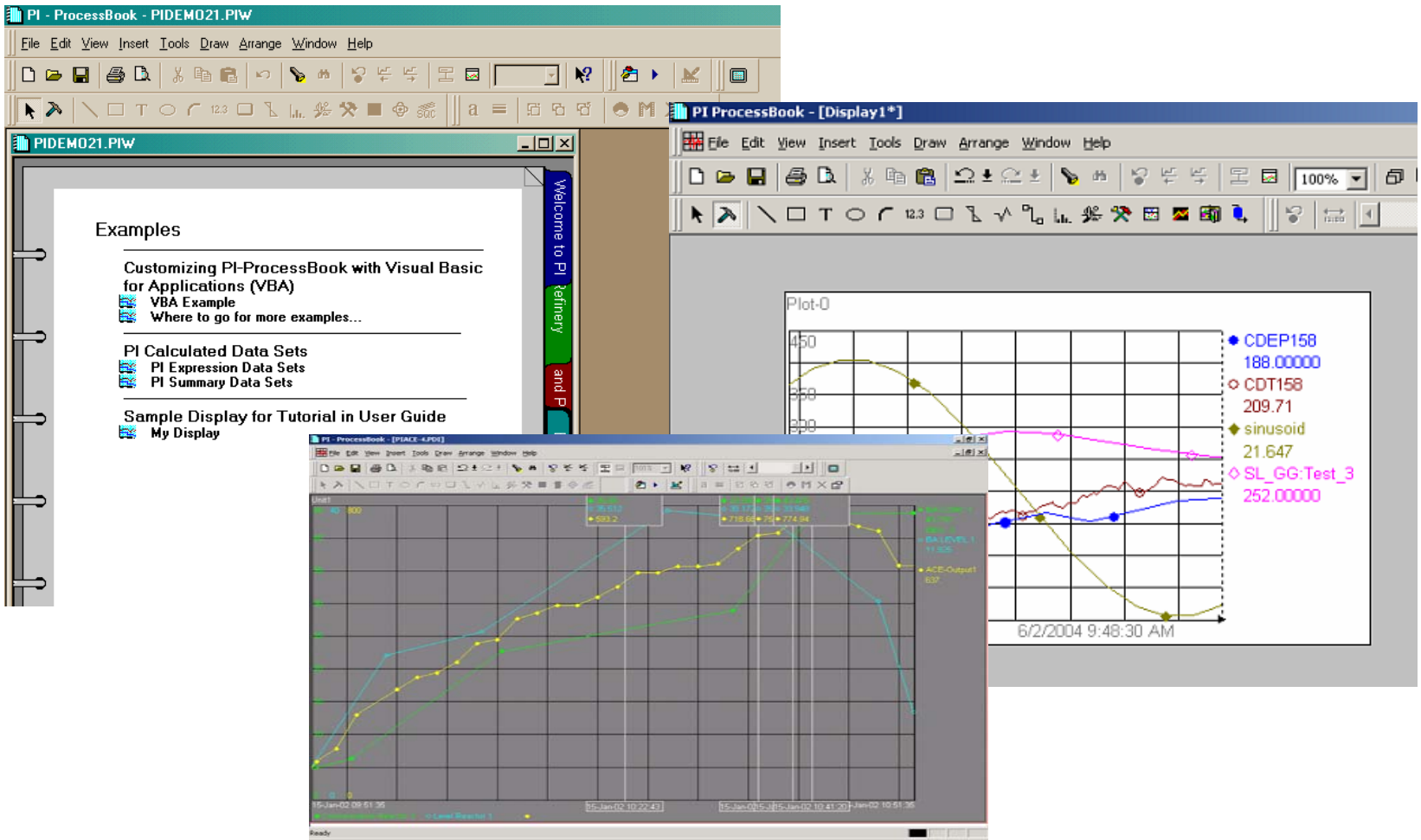
FactoryTalk Historian: Historian Reporting

- Microsoft Excel Add-In
  - Extracts values from Historian directly into a spreadsheet for further analysis
  - Easy to use and high performance – years' worth of data in seconds!
  - Supports dynamic links and automatic updates (relative and absolute formulas)



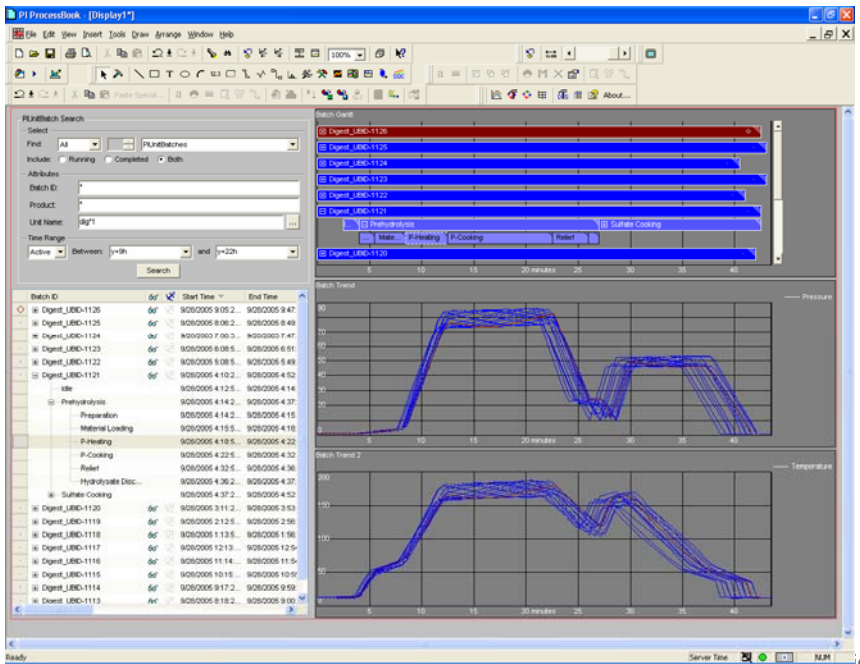
FactoryTalk Historian: Advanced Trending - Historian ProcessBook

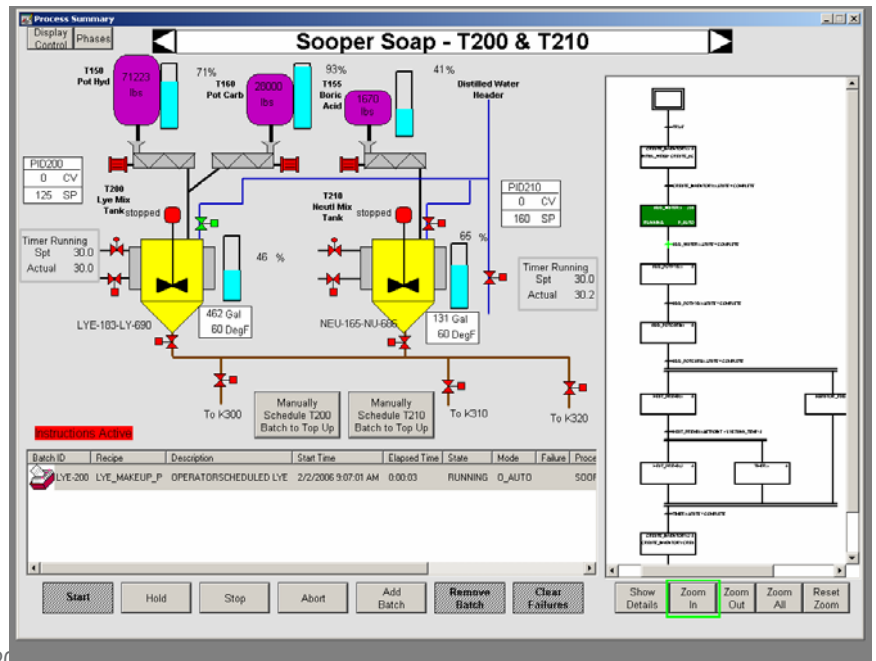
- A software application that allows users to build advanced process trends
  - Easy to use “workbook” view



FactoryTalk Historian: Batch Analysis Capabilities

- Batch Add-ins for Trending and Excel
  - Allows extraction of batch information from the Historian system
  - Copy information into spreadsheets or perform advanced batch-based trending
  - Query based
    - "The last three batches of Product A"
    - "All startups of Unit101 this month"





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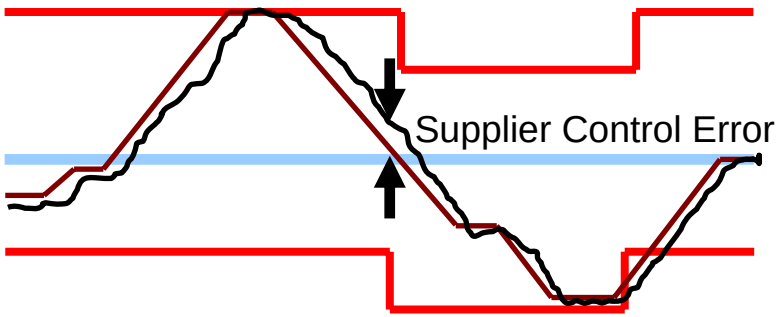
Section 4:
Calculations, Analytics, & Advanced Features

FactoryTalk Historian: Calculation Engine and Analytics

- Internal Calculation Engine
  - Performance Equations
  - Totalizers
  - ACE – Advanced Computing Engine
- Realtime SQC alarming on server
  - Including SQC Client to display SQC Charts
- Analysis Framework
  - For developing models for Analysis
- Development Tools
- Data Access
  - ODBC
  - OLEDB

FactoryTalk Historian: Advanced Computing Engine (ACE)



Example: Performance Metrics
1) Energy Calculations
2) Line Statistic Calculations

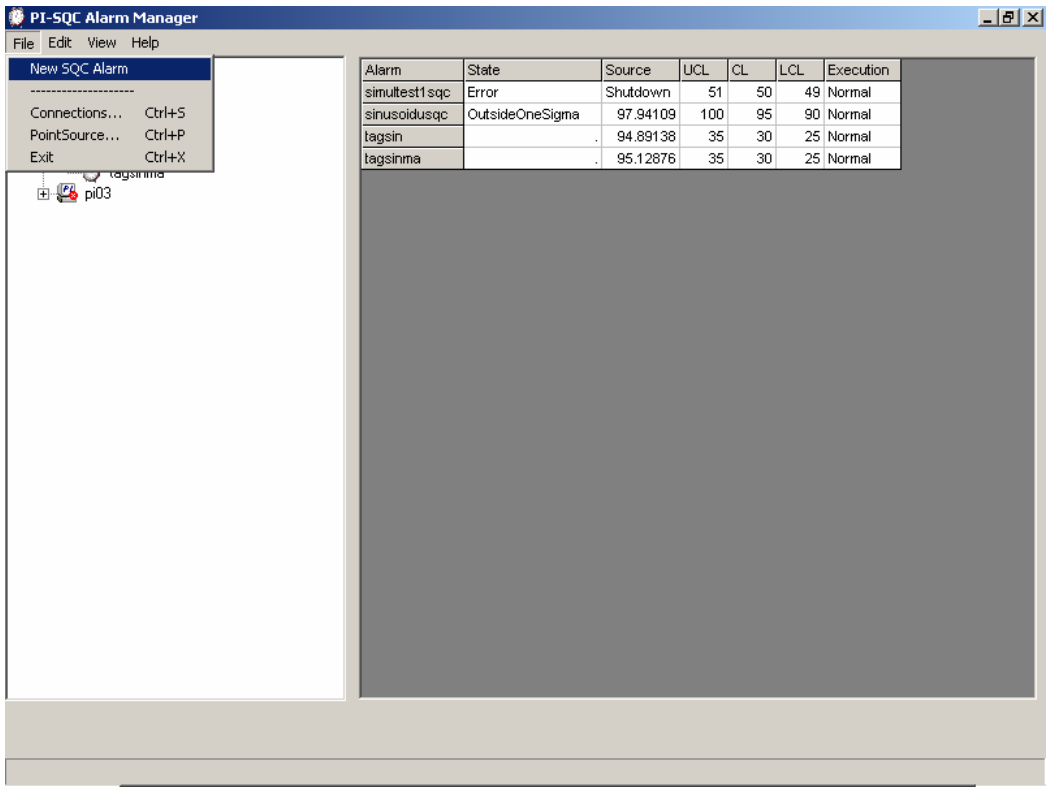
- Helps users easily create and instantly implement advanced calculations.
  - Centralized metrics; analyses can be reused throughout the enterprise
  - Can be scheduled to run on an event basis or on a clock basis
  - Automated analysis and recovery in event of server failure
- A wizard-based Visual Studio .NET integration utility makes calculation creation and management simple.
- Alerts you (via alarming, e-mailing, paging, etc.) of business opportunities or issues requiring immediate attention.

FactoryTalk Historian: Advanced Computing Engine (ACE)

- You can use various technologies within Visual Basic to retrieve data from non-Historian sources:
  - OLEDB
  - ODBC
  - ActiveX Data Objects (ADO)
- ACE computations can be run on a remote computer
- ACE can use tags from different Historian servers
- Natural triggering can use several input tags

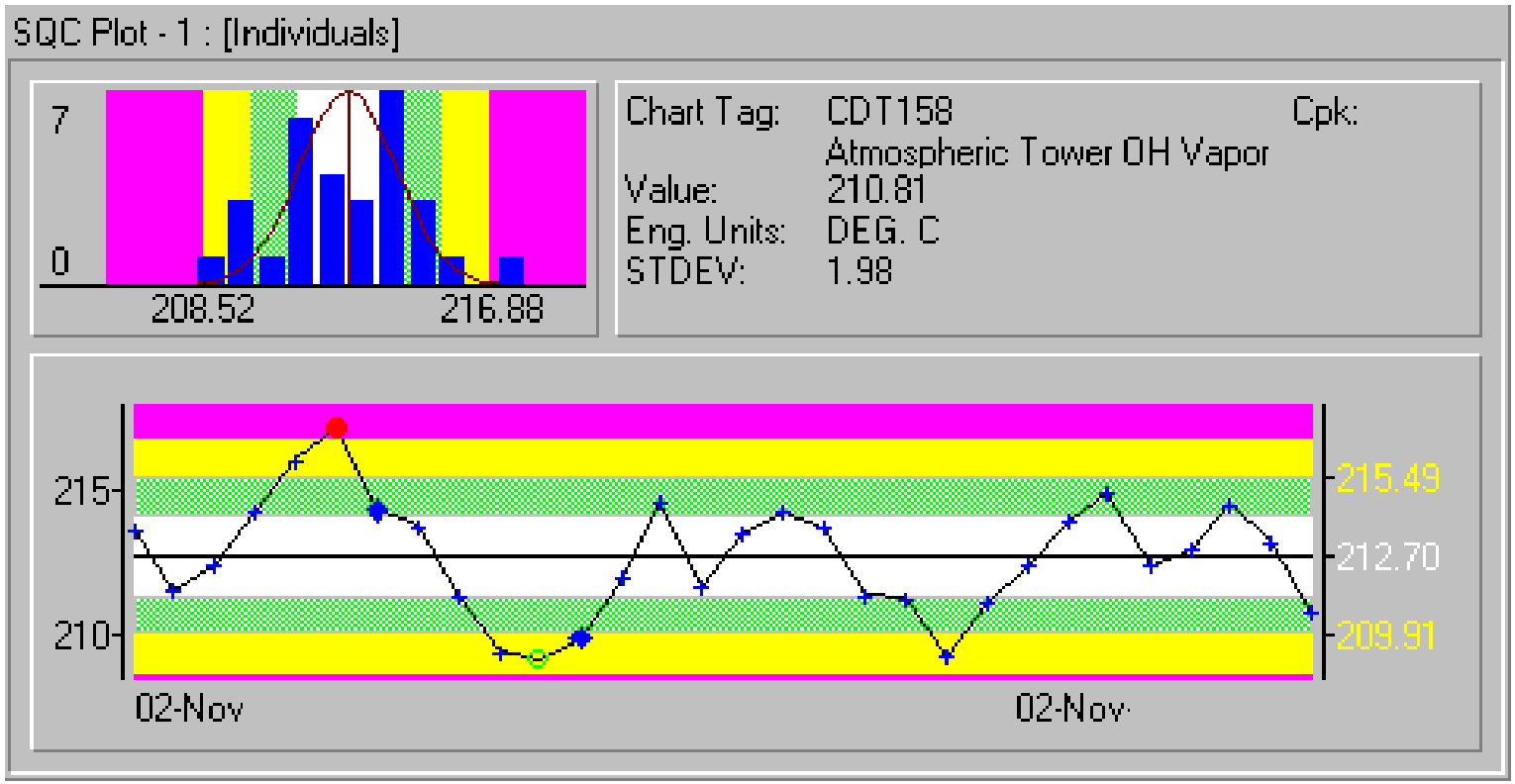
FactoryTalk Historian: RT-SQC Alarms Centralized on Historian Server

- To add a new RTSQC alarm, open the Editor:
  - Right-click on the server or click the SQC Alarm icon to get a context-sensitive menu ‘New SQC Alarm’



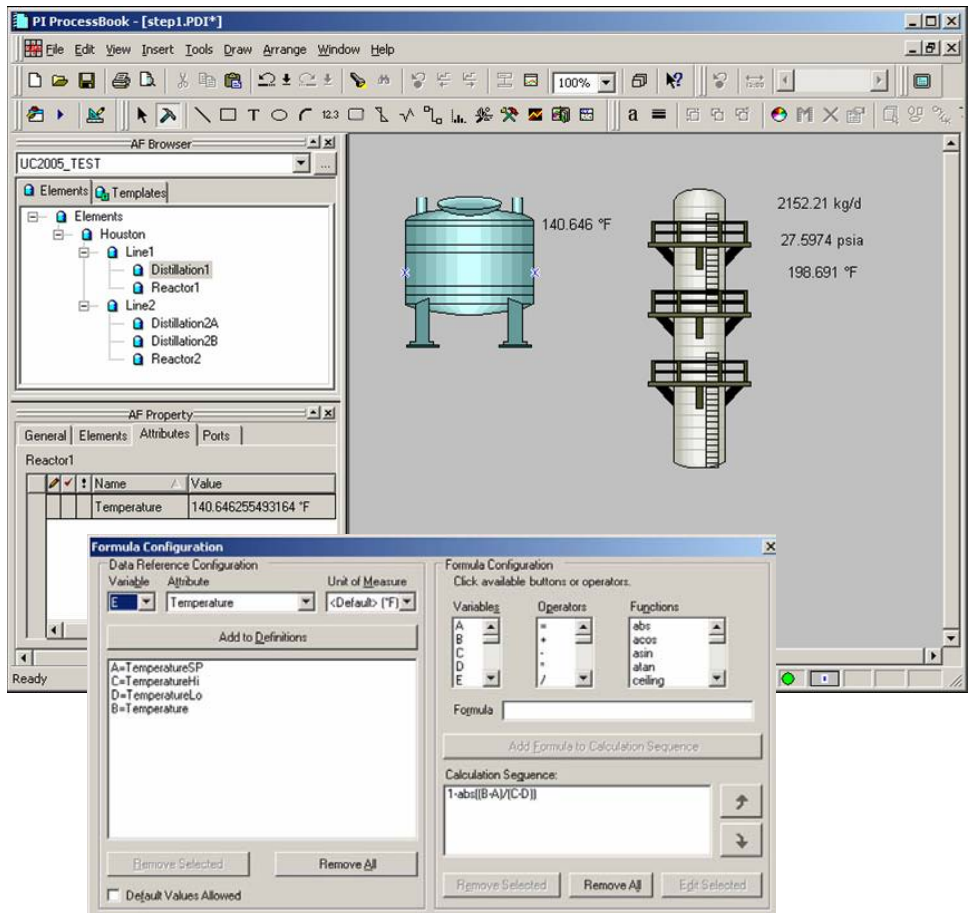
FactoryTalk Historian: Statistical Quality Control Charts

- Distinguish assignable cause variation from inherent variability with Statistics Quality Control (SQC) charts.



FactoryTalk Historian: Analysis Framework

- Analysis Framework is:
  - A toolset for relating and organizing data around your processes, operations, facilities and organization
    - Ties data to assets
    - Provides a way to arrange as templates and configure the assets within your organization
  - An infrastructure for analysis, visualization and reporting



FactoryTalk Historian: Development Tools

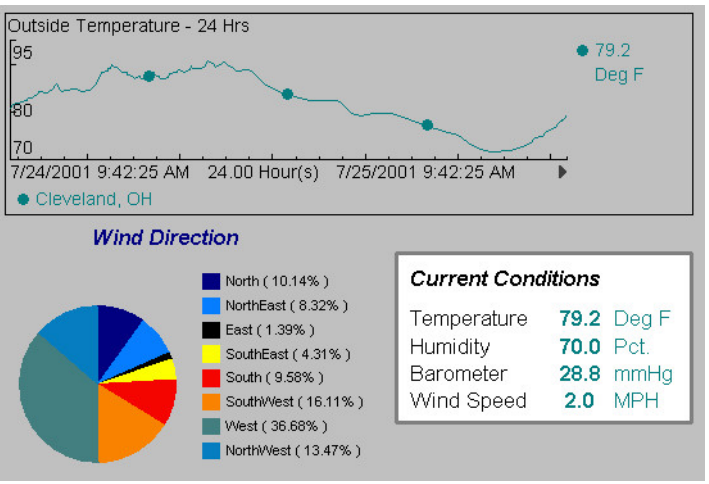
ProcessBook VBA

ActiveX Controls

PI DA, which consists of:

- OLEDB & ODBC (and
- Web services in the futu

Analysis Framework



Cleveland, Ohio Weather - *Wednesday, November 8,*

Current Conditions *(3 Minute Updates)*

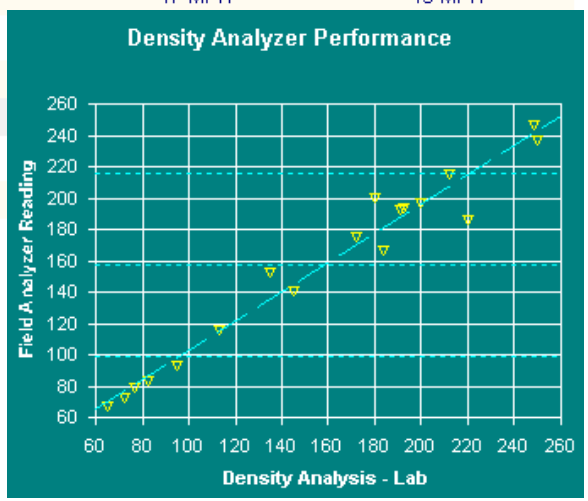
Temperature	Wind Chill	Wind Speed	Direction	Humidity	Precipitation	Barometer
64 Deg F	64 Deg F	1 MPH	SouthEast	80 %	0.01 in.	28.76 in Hg

Weather Almanac for - *Wednesday, November 8,*

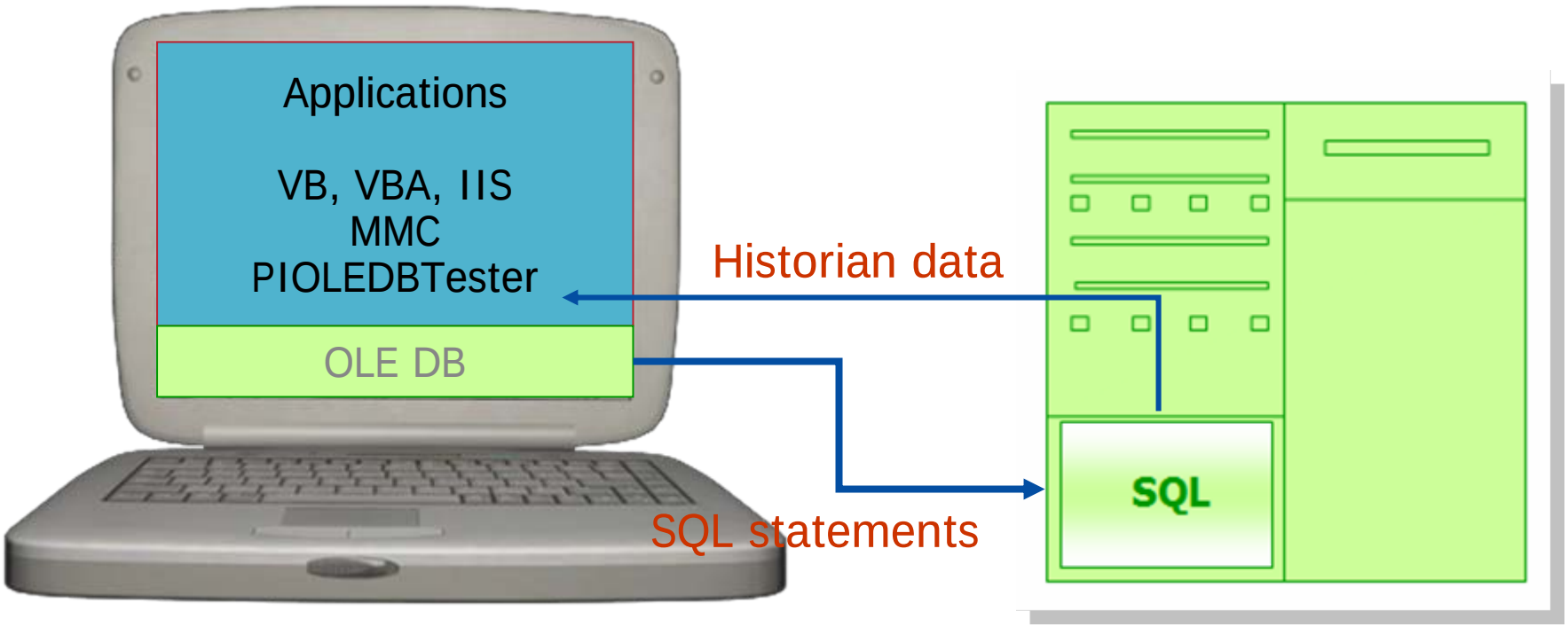
Temperature	On This Date	The Prior Year	Normal
High	64 Deg F	60 Deg F	57 Deg F
Low	51 Deg F	34 Deg F	42 Deg F
Wind Chill			
Low	40 Deg F	21 Deg F	31 Deg F
Wind Speed			
Maximum	13 MPH	17 MPH	15 MPH
Humidity			
High	95 %		
Low	80 %		
Precipitation			
	0.01 in.		

Select Almanac Date

Month NOV Day 8



FactoryTalk Historian: ODBC/OLEDB Architecture



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Section 5:
Product Demonstration and Question & Answer