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Turning **insight** into **action**.



Tips from the Trenches

Presented by **Brandon Munroe, Ryan McErlean, and Craig Torpey**

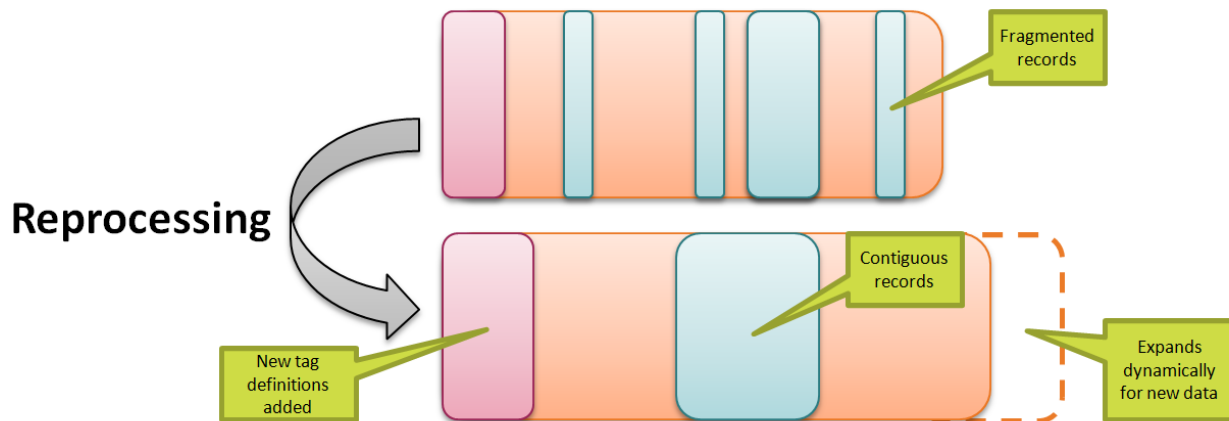
Tips from the Trenches

- Best Practices when moving a PI Server
- High Availability with your PI Server
- Integrating PI AF (High Availability and PI Client Tips)

Best Practices When Moving a PI Server

- PI Server side
 - Reprocess archives for performance
 - Ensure the consistency of the move
 - Update the time zone rules
- PI Client side
 - Time Zone considerations for PI Clients
 - Automate migration of PI ProcessBook displays

Reprocess Archives for Performance

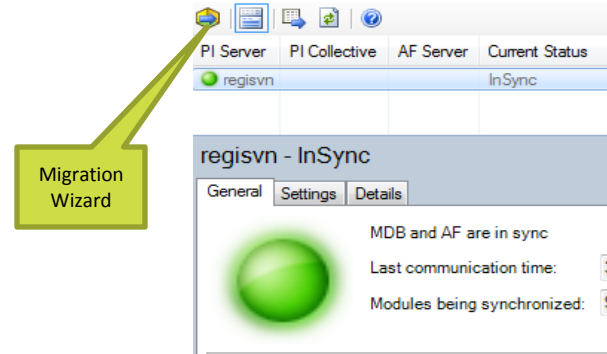


- The Benefits
 - Repairs any errors in the archives
 - Arranges the records for continuity → faster reading
 - Creates space for newly created tags

Ensure the Consistency of the Move

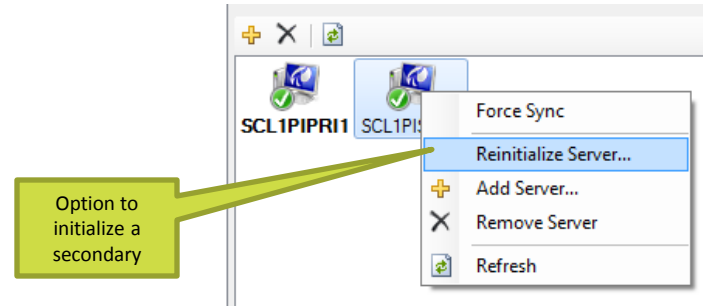
- PI AF Link

- Migrate after the PI Server move
- Cleans remnants of the old PI Server from PI AF Link



- PI HA Collectives

- Initialize the Secondary after moving the collective
- Ensures consistency



Update the Time Zone Rules



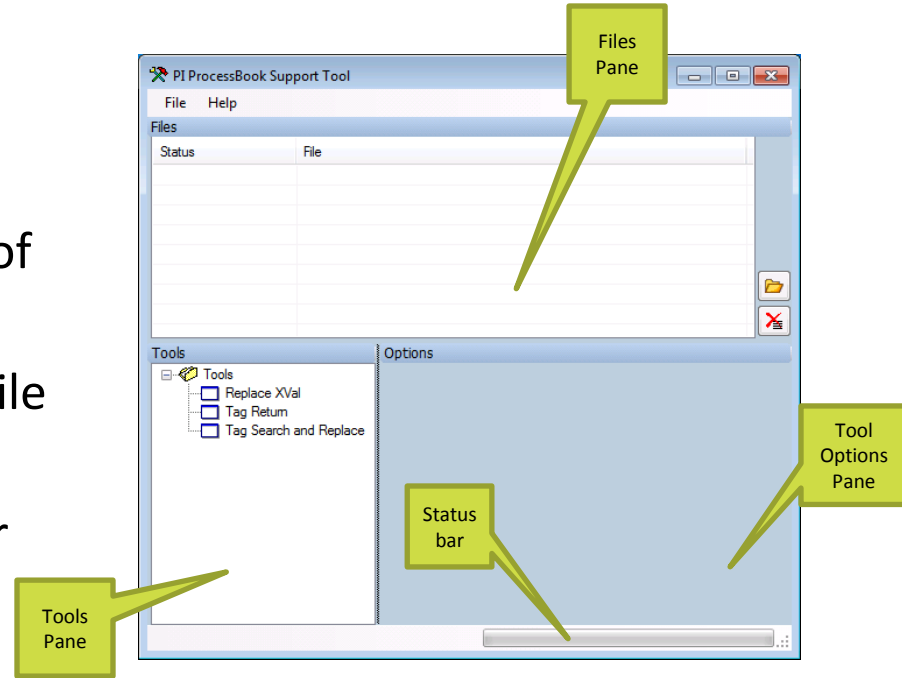
- The Raw Data
 - Stored in UTC seconds and unaffected by time zone changes
 - Converted to the requested time zone when returned to PI Clients, including DST offsets
- Daylight Saving Time rules
 - Apply updated patches to Operating System
 - Update localhost.tz, to apply correct offsets
 - Use `pipc\adm>pidiag -tz` to verify localhost.tz settings

Time Zone Considerations for PI Clients

- Client vs. Server time zone
 - PI SDK applications (PI ProcessBook, PI DataLink), can either use the Client time zone or Server time zone
 - Portal Products (PI WebParts) use the time zone configured on the Portal
- When to use a custom Localhost.tz file on a Client
 - If viewing data with the Client time zone
 - If viewing historical data when DST rules were different than today's

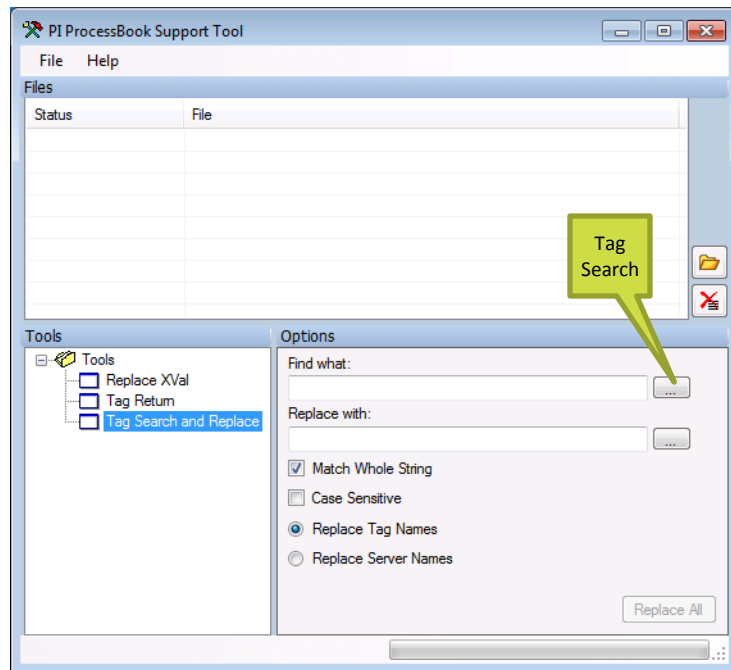
Migrating PI ProcessBook Displays After PI Server Move

- PI ProcessBook Support Tool
 - Contains utilities that aid in the management and administration of PI ProcessBook
 - Creates a backup of each display file modified
 - For use with PI ProcessBook 3.1 or later



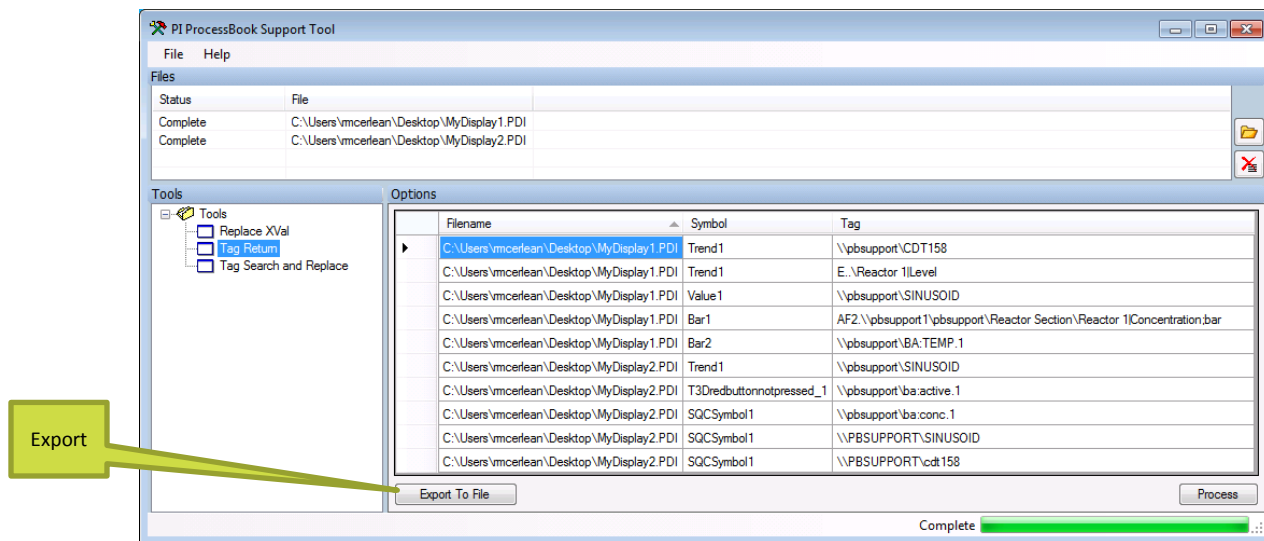
Tag Search and Replace

- Assists with migrating displays and with making large scale modifications
- Works on all dynamic symbols except:
 - PI BatchView
 - PI SQC
 - Expression Datasets



Tag Return

- Reports tags referenced by selected PI ProcessBook displays along with the associated symbol

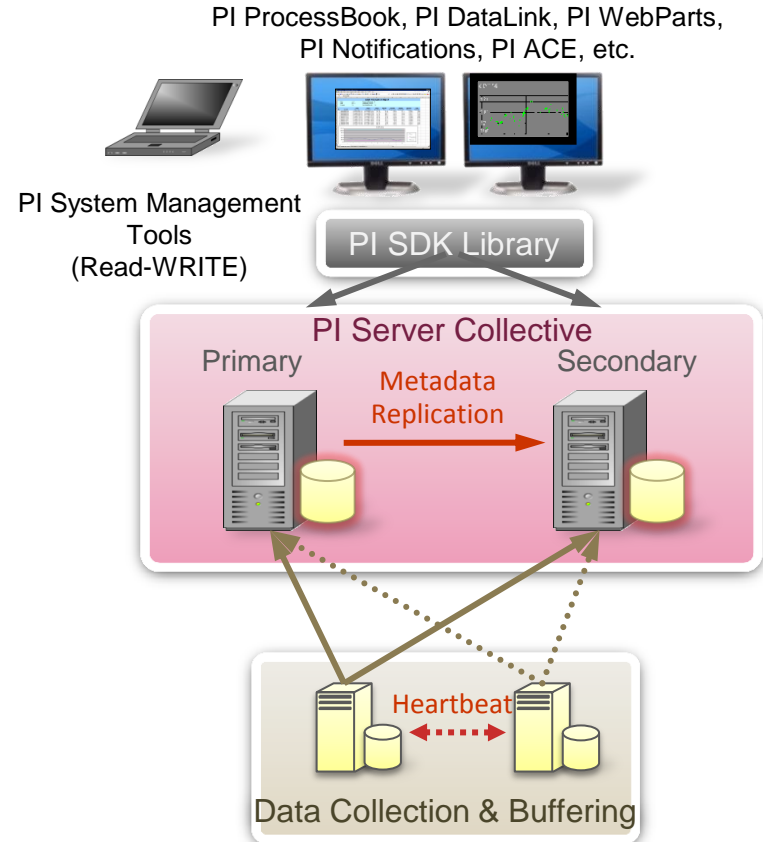


High Availability (HA) With Your PI Server

- PI Server High Availability
 - How a PI Server Collective works
 - Benefits of a PI Server Collective & Best Practices
- High Availability with PI Clients
 - Load Balancing using PI Client configuration

How a PI Server Collective Works

- Collective Members have a role
- Synchronization
 - Configuration only (tag configuration, MDB, users, etc...)
 - Data is not synchronized
- Downtime
 - Data buffers with PI Buffer Subsystem
 - Configuration will be synched when the member comes online again
 - PI Clients can still connect to other members of the collective

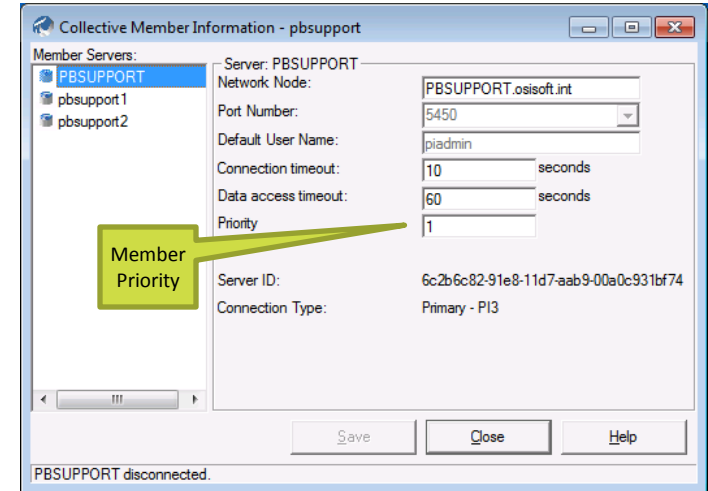


Benefits of a PI Server Collective & Best Practices

- Rolling Upgrades
 - One PI Server can stay online, while the other is being upgraded
- Dedicated Hardware
 - Mitigate a single point of failure
- Geographical Distribution
 - Collective members can be large distances from each other
- Make sure the members are identical
 - Hardware, installed PI System software, etc...

Load Balancing Using PI Client Configuration

- Don't use a load balancer on the server
- PI SDK Connection Preferences
 - PreferPrimary
 - RequirePrimary
 - Any
 - Priority setting in PI SDK
 - PI Clients use Any by default
- Connection Preference configurable in PI ProcessBook
 - ProcBook.ini section [Collective Preference]
 - Collective Name = PreferPrimary/RequirePrimary/Any

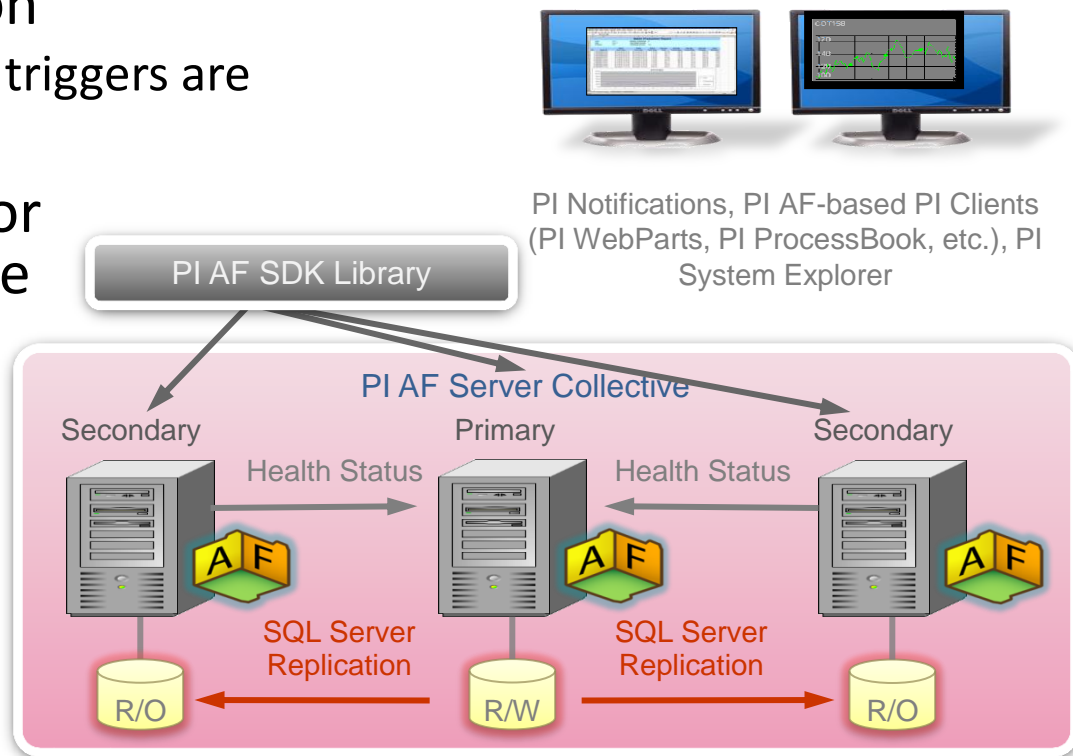


Integrating AF (High Availability and PI Client Tips)

- High Availability with PI AF
 - How a PI AF Collective works
 - Common invalid PI AF architectures
- PI AF Tips for PI Clients
 - PI AF in PI ProcessBook, PI DataLink, PI WebParts
 - Best Practices When Using PI AF in PI WebParts

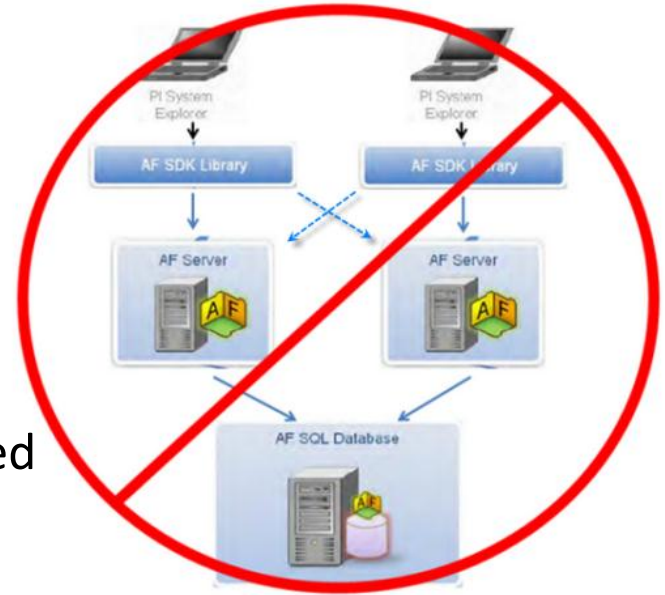
How a PI AF Collective Works

- Uses SQL Server Replication
 - Specific tables, indexes and triggers are marked
- Push Subscription set up for PIFD_Distribution Database
- Benefits
 - Load Balanced Reads
 - Distance between SQL Servers
 - Protection from catastrophic server failure



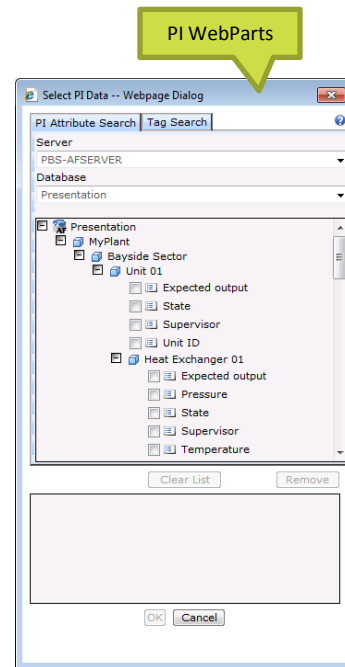
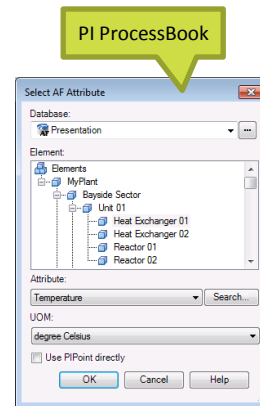
Common Invalid PI AF Architectures

- Multiple PI AF Servers
 - Accessing the same PIFD Database without TCP/IP load balancing
 - AFSysID must be unique on each node
 - TCP/IP load balancing gives illusion of redundancy
 - Accessing a PIFD Database that was replicated across different SQL instances



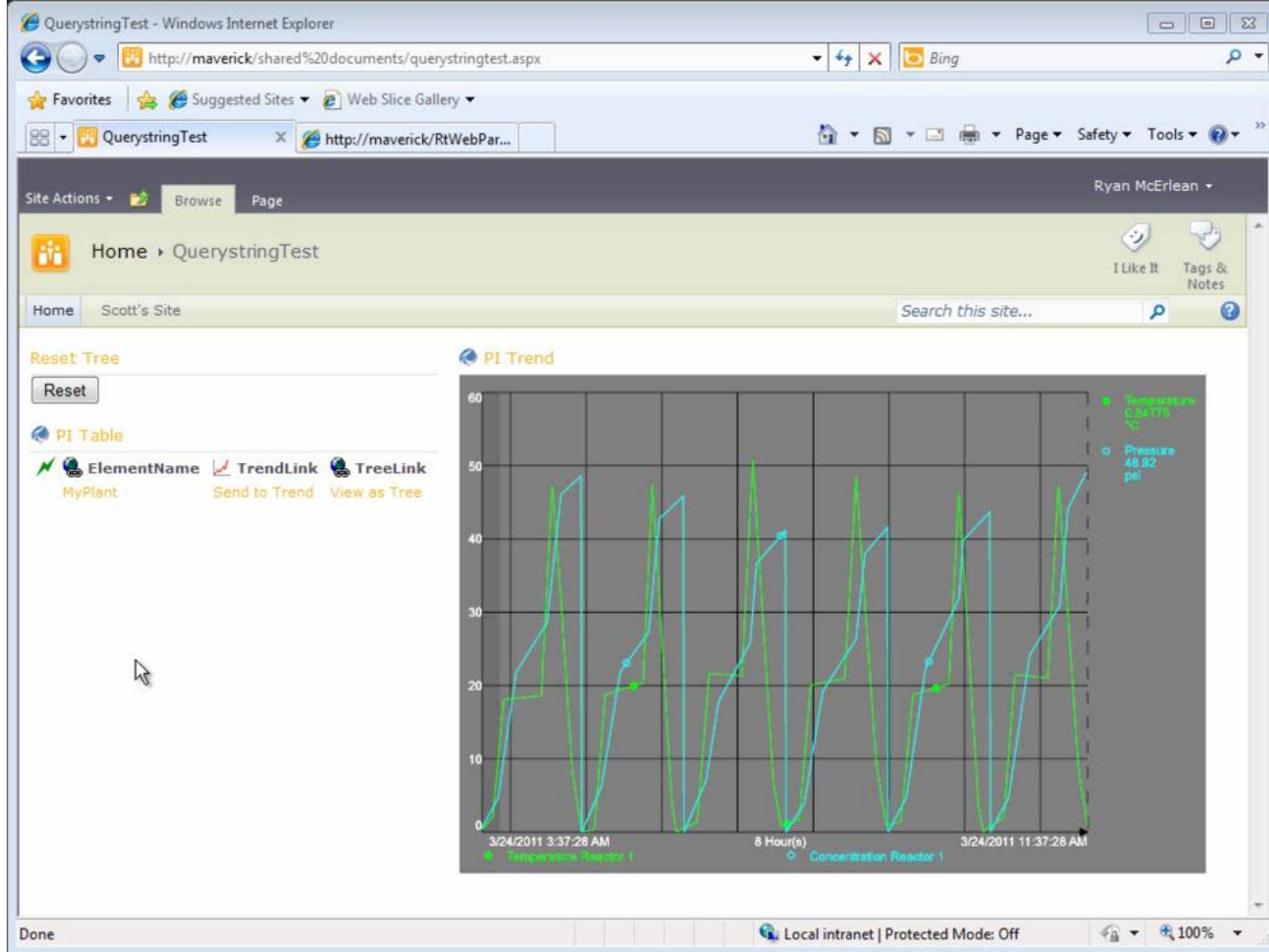
PI AF in PI ProcessBook, PI DataLink, PI WebParts

- PI ProcessBook fully supports PI AF
 - AF2 Datasets
 - Element Relative Displays
- PI DataLink does not yet support PI AF natively
 - PI OLEDB Enterprise allows you to use PI AF data in Microsoft Excel
- PI WebParts fully supports PI AF
 - PI Attribute Search



Best Practices When Using PI AF in PI WebParts

- Large PI AF trees can be cumbersome on a web page
 - PI Table is a better way to present large amounts of PI AF data
 - Same functionality, easier to work with
 - Can create an ad-hoc PI TreeView from a subset of PI AF data
 - Querystring parameters – parameter connection values added to web part page URL



Summary

- When moving, Make a plan!
- Implement High Availability solutions to maximize uptime
- Leverage PI AF with your PI Clients to get the most out the PI System
- If you have any inquiries on recommended architectures, please call or email OSIsoft Technical Support

Where to Look for More Info

- TimeZone and DST information
 - <http://techsupport.osisoft.com> → Knowledge Center → System Manager Resources
- PI AF Collective information
 - PI AF 2010 R2 Installation and Maintenance User Guide
- PI Server Information
 - PI Server 2010 System Management Guide
 - PI Server 2010 MDB to AF Transition Guide
 - High Availability Administrator Guide
- How to configure a PI Table to behave like a PI TreeView
 - KB# 00436, <http://techsupport.osisoft.com/Support+Solution/8/KB00436.htm>
- PI ProcessBook Support Tool
 - <http://techsupport.osisoft.com> → Download Center

How to Contact us

- Technical Support
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- Feel free to come find us throughout the rest of the day to ask any additional questions.



Thank you

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into **action.**