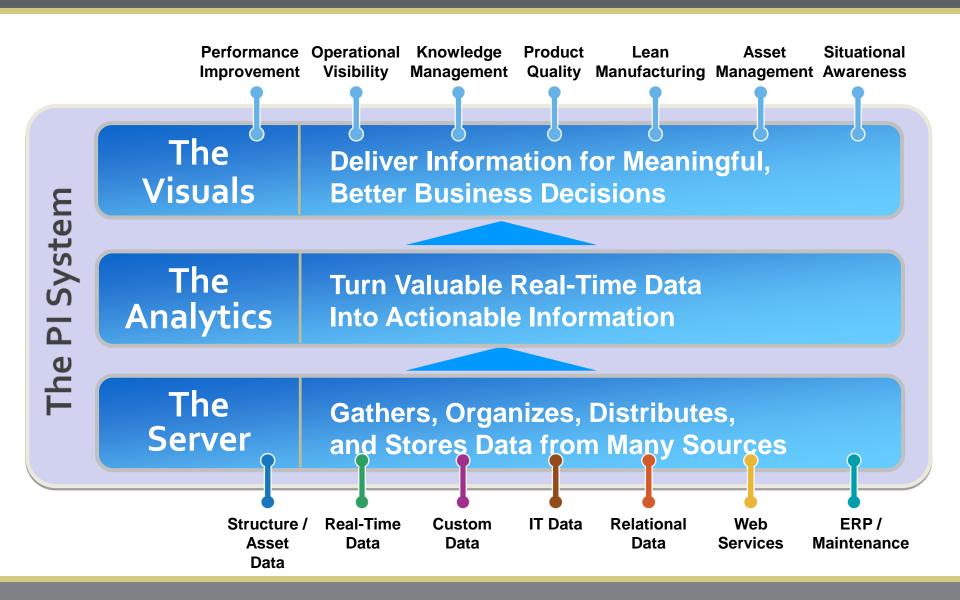


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Interfaces

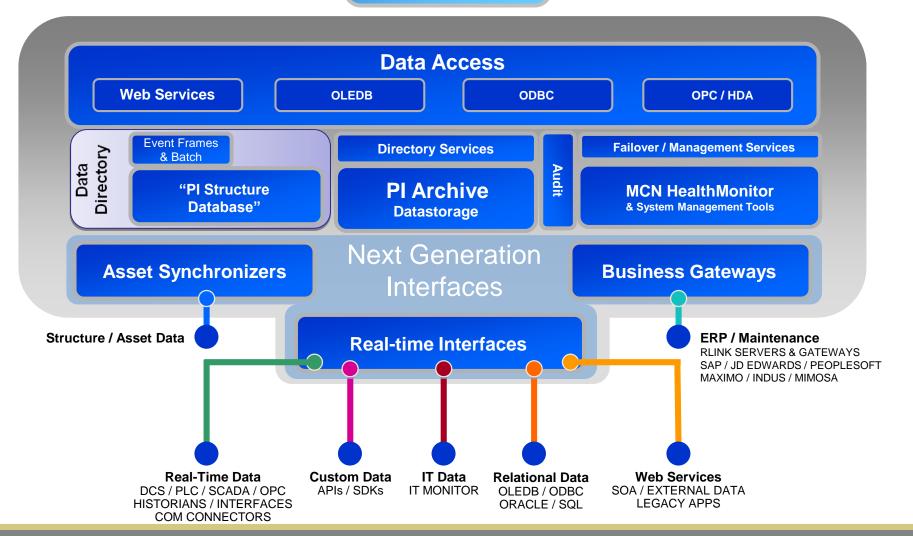
Klaus Pohl



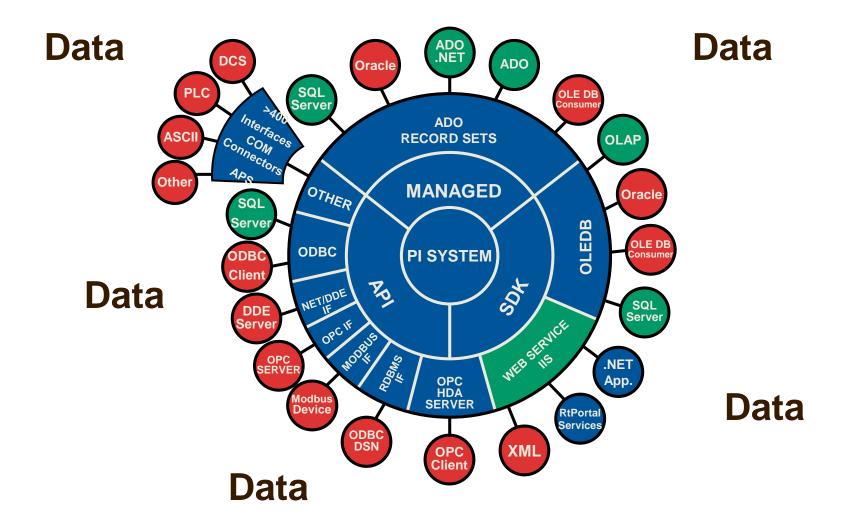
The Server



The Visuals



- PI Interfaces create high-speed links to data sources, providing real-time, fault-tolerant data to the PI System.
- PI Interfaces are links to virtually any real-time data source. They consolidate the operations data from multiple-generation or multiple vendor control systems into a single, coordinated, information system.



- PI Interfaces are built using proven technology that assures consistent performance, regardless of the computer platform or target data source. They can be configured to collect data from remote computers, making your infrastructure as flexible as you need it to be.
- PI Interfaces' fault-tolerant technology keeps collecting data even if your system is interrupted.
 They will hold and automatically transmit the data back to the PI System once the connection has been re-established.

PI Interfaces provide:

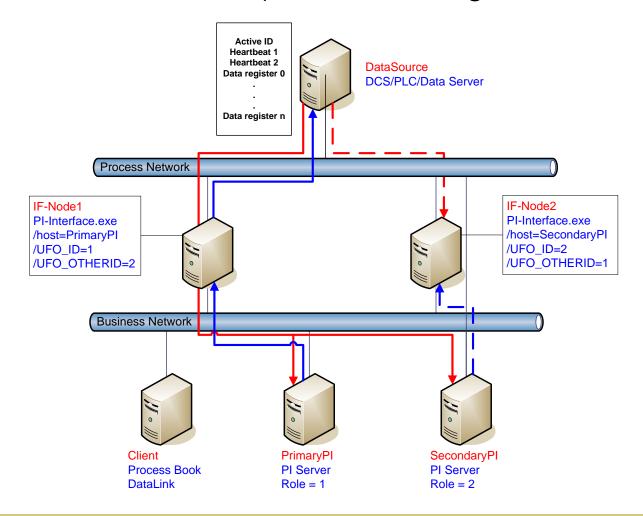
- Distributed data collection
- Continuous data collection and buffering during communication failures
- Data collection on NT, UNIX, and VMS

Interfaces - UniInt

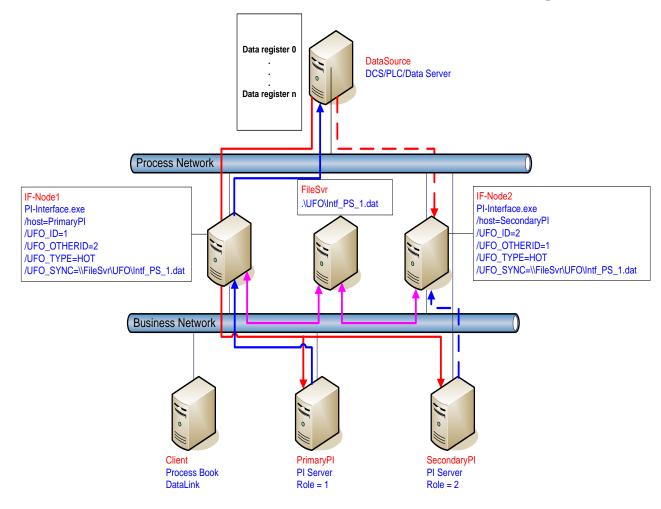
- The OSIsoft Universal Interface (UniInt) standard helps reduce training and maintenance costs with the following standard features:
 - Consistent installation routine
 - Similar configuration parameters
 - Orderly startup/shutdown routines
 - Messaging
 - Indication of bad data and communication failures
 - Automatic incorporation of PI point attribute changes
 - Failover

- Failover Mechanism based on UNIINT
- Hot Failover, no Data Loss Solution given a single Point of Failure
- Goal: Failover Solution applicable to many PI Interfaces with minimal Effort for the Developer
- UNIINT Failover Phase I requires the Interface to support Outputs to the DCS
- UNIINT Failover Phase II will not have this Requirement
- UNIINT Failover Phase II supports Warm Failover

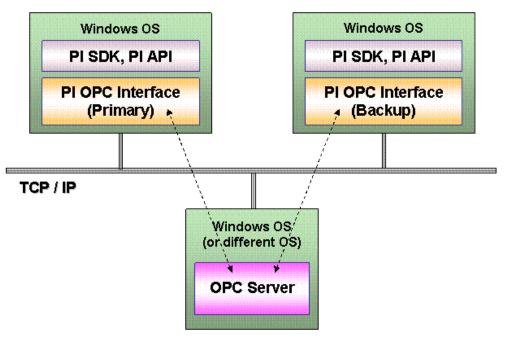
UNIINT Failover Scheme (Phase I, through the Data Source)



UNIINT Failover Scheme (Phase II, through a Shared File)



Example: UNIINT based Failover (Phase I) for the OPC Interface



Tip: For an alternative solution, please check OSIsoft's August 2008 Technical Support Newsletter:

"Tech Tip of the Month - How to set up OPC failover with two OPC interface nodes both running an OPC Server" at http://techsupport.osisoft.com

Recently released Interfaces that support UNIINT based Failover Phase II

- PI to PI TCPIP Interface (PI-IN-OS-PI-NTI) version 3.6.1.0
- ESCA HABConnect Interface (PI-IN-ES-AC-NTI) version 1.2.8.6

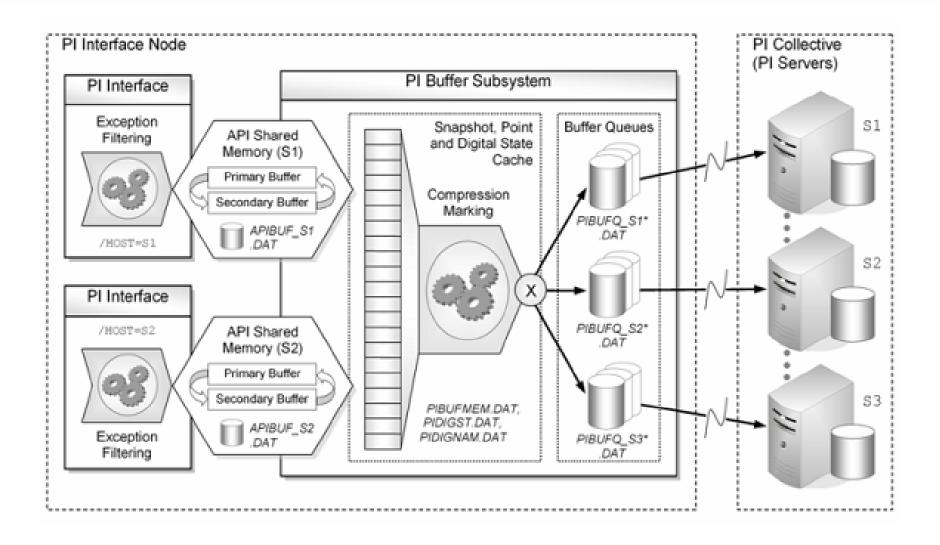
Interfaces - Buffering

- With Platform Release 1 (PR1, 3.4.375.x), OSIsoft now offers two different Methods for Buffering Data from the Interface node to the PI Server (or Collective):
 - API Buffer Server (Bufserv available for Years)
 - Buffer Subsystem (PIBufss new*)
- The Buffer Subsystem (PIBufss) is a new Component of the PI System, primarily designed to enhance the High Availability (HA) Features of the PI Server.
 - (*) Latest Version: pibufss.exe 3.4.375.84

Interfaces - Buffering

- PIBufss is different from the API Buffer Server (Bufserv), even though it has most of the same Capabilities
- The Buffer Subsystem runs the Compression Algorithm before all (sic!) Time-Series Data that passed the Exception test is sent to the PI Server(s)
- This guarantees identical Data in the Archive Records of all PI Servers in an HA Collective
- Brings another Reduction of CPU Usage for the Snapshot Subsystem
- Overall, the more distributed CPU Load translates into a higher Scalability of your PI System

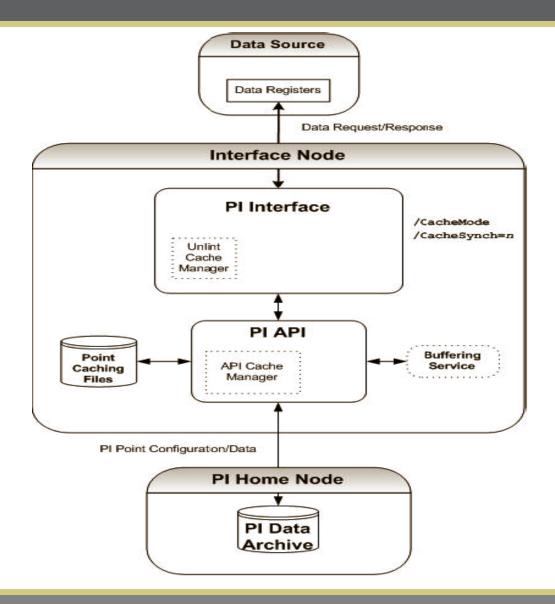
Interfaces - Buffering



Interfaces - Disconnected Startup

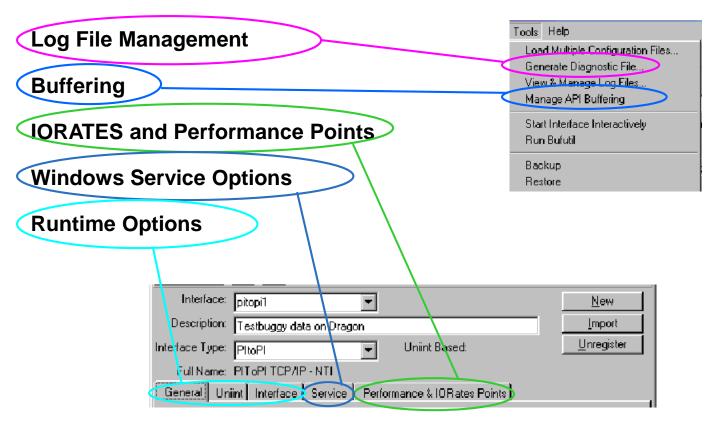
- Disconnected Startup is a PR1 Feature for Interfaces
- Requirements:
 - PI Server must be Version 3.x or later
 - PI-API 1.6.1.5 (distributed with PI- SDK 1.3.4.333)
 - Interface built with UniInt Version 4.3.0.x or later
- First time the Interface is started, Connection to PI Server required
- Two local Cache Files will be created on the Interface Node:
 - Point cache file
 - Digital set cache file
- Point Information for the Interface will be synchronized with the PI Server once a valid Connection to the PI Server becomes available.
- API Cache Manager responsible for maintaining Point Caching Files
- (Outputs will not be supported while disconnected from the PI Server)

Interfaces - Disconnected Startup



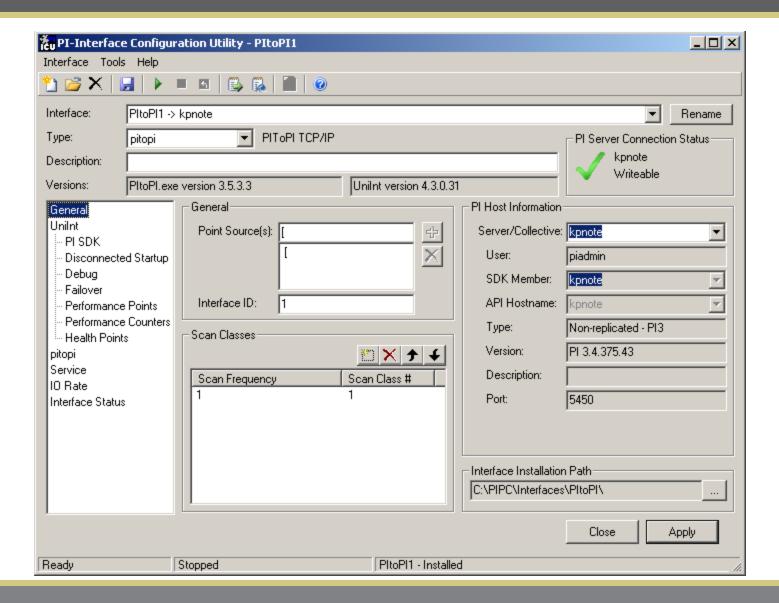
Interfaces - PI ICU

- Interface Configuration Utility (ICU) aids in Configuration of Interface Nodes
- Consolidates Interface Setup Options into one GUI



Customizable for individual Interfaces via ICU Controls

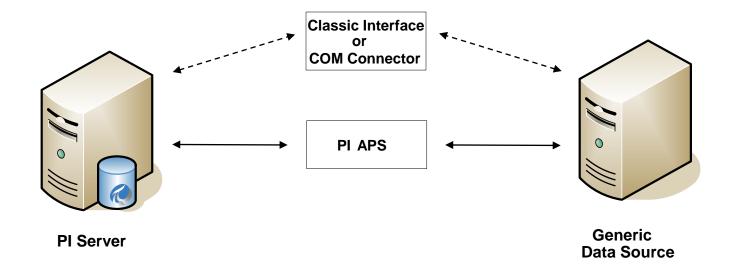
Interfaces - PI ICU



Interfaces - PI AutoPointSync (PI APS)

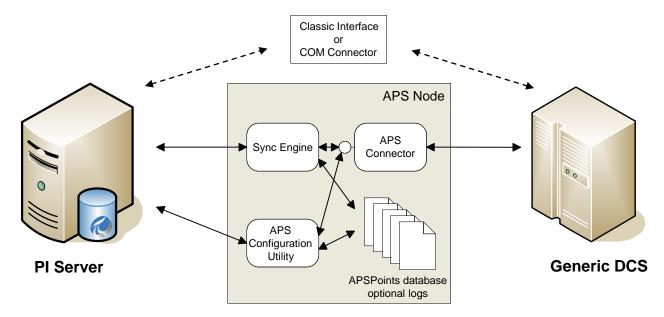
- Product to synchronize PI Point Database with DCS Database
 - Create Available Points
 - Edit Existing Points
 - Delete or disable Removed Points
- Automated Monitoring and Updating of PI Points
- Detailed Control how Tag Creation and Tag Edits on a remote System are propagated to PI

Interfaces - Pl AutoPointSync (Pl APS)



Interfaces - Pl AutoPointSync (Pl APS)

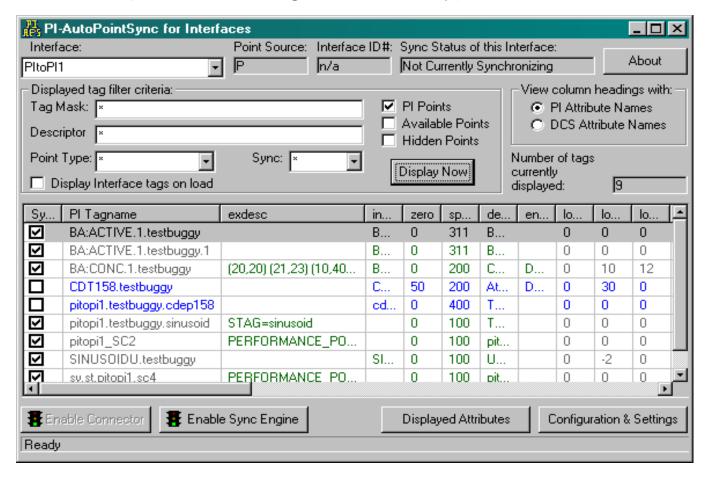
- Three Modules
 - Front End GUI (PI APS Configuration Utility)
 - Synchronization Engine
 - APS Connector to DCS



- PI-APS is available on the Windows Platform
- Communication between the three Modules is based on COM

Interfaces - PI AutoPointSync (PI APS)

Front End GUI (PI APS Configuration Utility)



Interfaces - Recently released...

ESCA HabConnect	1.2.8.6	DNP3	3.0.1.0
OPC Alarms and Events	1.3.3.91	Batch File	2.11.1.0
Intellution Fix DMACS	2.4.3.0	PltoPl	3.5.5.0
OPC Interface	2.3.9.0	Simca Batch On-Line	2.1.0.0
CSILoggerNet	1.0.2.0	Bailey Infi90 SemAPI	1.4.2.0
UFL Interface	3.0.2.5	OPC HDAInt Interface	1.3.1.0
Simca Batch OnLine	2.1.0.3	MCN Health Monitor Intf.	1.3.1.0
Quindar	2.0.2.0	OKI Zigbee Interface	1.0.3.35
China Network Isolator	2.1.1.0	TCPResponse	1.1.6.0
Batch Event File Monitor	3.8.6.6	Bailey Infi90	1.8.2.0
Aspen Tech CIMIO Client	2.0.2.0		

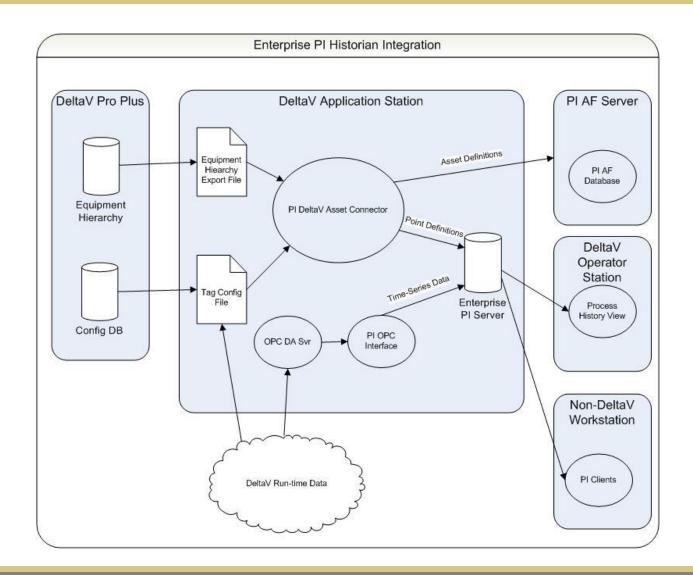
Interfaces in development (Example)

DeltaV Smart Connector

The DeltaV Smart Connector (DeltaV_SMC) for Emerson DeltaV is a term to relate all the components needed to replace a DeltaV embedded PI Server. There are 3 main components of a DeltaV Smart Connector: Enterprise PI Server, OPC Data Access (DA) interface and the DeltaV Asset Connector. There are three main tasks of the DeltaV Smart Connector:

- Create PI Points automatically.
- Collect time-series data and send it to the PI System through the OPC interface.
- Create AF Objects automatically.

Interfaces in development (Example)



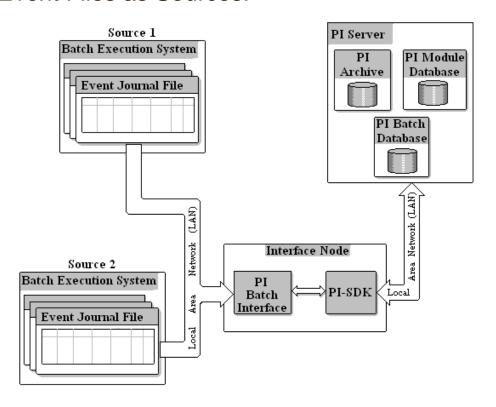
Emerson DeltaV Batch Interface

OSIsoft's Emerson DeltaV Batch Interface to the PI Data Archive collects Batch Data from the following Batch Executive System Data Sources:

- Emerson DeltaV SQL Batch Historian (Ver. 9.3+),
- DeltaV OPCAE Server (Realtime Batch Data only) (Ver. 10.3+ only)
- OPCAE Alarm Data with Data Recovery (requires SQL Historian to be installed) (Ver 9.3+)
- Event Journals (EVT Files) (all versions)
- DMI (Emerson) Compliance Suite. Microsoft MSMQ (Realtime), Webservices (Historical Data Recovery).

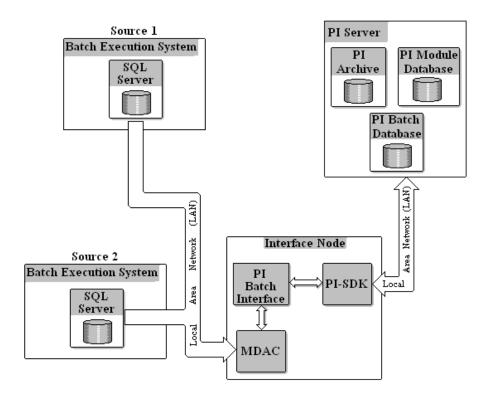
Emerson DeltaV Batch Interface

Schematic of Recommended Hardware and Software Configuration for Batch interface with Event Files as Sources.



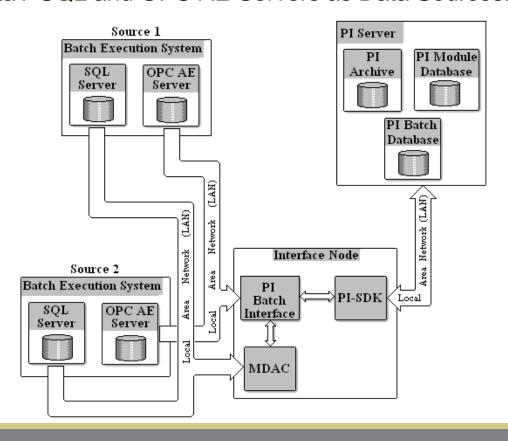
Emerson DeltaV Batch Interface

Schematic of Recommended Hardware and Software Configuration for Batch Interface with DeltaV SQL Servers as Data Sources.



Emerson DeltaV Batch Interface

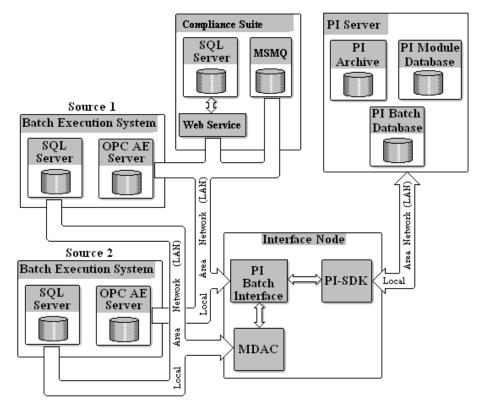
Schematic of Recommended Hardware and Software Configuration for Batch Interface with DeltaV SQL and OPC AE Servers as Data Sources.



Emerson DeltaV Batch Interface

Schematic of Recommended Hardware and Software Configuration for Batch Interface with Compliance Suite, DeltaV SQL and OPC AE Servers as Data

Sources.



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