Introduction:
Connected Services Delivers Customer Sensor-based Data to Service Providers
An increasing number of asset owners rely on data-driven aftermarket services. While service providers have ample expertise, they lack access to the real-time customer data that is needed for offering timely advice and making smart decisions.

Connected Services enables service providers to use OSIsoft’s PI System™, a real-time data infrastructure, to collect customer data from many different sources and store it in a central location where experts can visualize, analyze and share data.

These PI System capabilities make new data-driven services possible or existing services even better. By gaining insight into a customer’s critical operations, service providers can use it to optimize asset performance, troubleshoot maintenance problems, improve operation, reduce energy consumption, and many other activities that improve a customer organization’s overall value.

By accessing data from Connected Services, providers can build high quality services on a foundation of data that strengthens the customer partnership based on data and trust.

A Connected Services Agreement (CSA) is based on a “Pay-as-you-grow” subscription model that allows service providers to install a PI System that meets their data requirements without a large upfront expenditure. This arrangement reduces the financial, market, and operating risks associated with the development of new services, the enhancement of existing services, and the move into new markets.

OSIsoft offers a variety of subscription lengths, fee structures and payment options that allow service providers to focus on providing excellent services rather than financial arrangements.
OSIsoft’s Connected Services enables service providers to use the PI System data infrastructure to derive the most value from their expert team of engineers, field service personnel as well as their accumulated expertise, experience, and data.

- **Engineering and Design**
  Firms that design, build, or supervise the construction of power plants, water treatment systems, manufacturing facilities, and other large assets can apply their engineering, design, and construction expertise to help their clients optimize asset performance and troubleshoot operating problems. [Black & Veatch presentation.]

- **Operations and Maintenance (O & M)**
  O & M providers rely on their Connected Services to provide the real time and contextual data to recommend and implement maintenance procedures that maximize asset availability and reliability and minimize the impact of downtime or unexpected shutdowns. [Example - View Rolls-Royce video.]

- **OEM Customer Service**
  Connected Services provides multiple streams of data to OEMs to support aftermarket services based on a knowledge of asset design, field histories, and nameplate information to optimize maintenance procedures, troubleshoot failures, and enhance warranty service. With a connected services agreement OEMs can identify inherent equipment design problems and apply field insights to product development. [Example - View Flowserve video.]

- **Sharing Data Across the Supply Chain**
  While monitoring customer assets, a service provider can use the Connected Service model to share data with other stakeholders. In a joint venture, investors can use production data to analyze the investment performance. An equipment manufacturer can use operating data to track installed equipment. And, specialized experts can apply analytics to benchmark operations against similar asset types.
As part of the Connected Service Agreements, OSIsoft offers several start-up services and training options that help customers optimize their architecture, install and create asset hierarchies, and get the most out the PI System.

Connected Service Architecture allows service providers to remotely capture sensor data from customer assets for analysis and visualization.
OSIsoft’s Connected Service agreements allows service providers to install a PI System that meets projected needs. They can match the size of the PI System with their business plan forecasts. This includes the type of business, the size and capabilities of the assets, market requirements, compliance and standard requirements, and individual customer needs.

The main components of a Connected Services architecture are:

- **The PI System:**
  The PI System sits in a Remote Monitoring and Diagnostic Center (RMD) which contains the computing, storage, and networking resources needed to support the PI System. The RMD can be located on the customer premises, a co-located data center, or in a cloud environment. Additionally, the RMD may include the capabilities needed to handle customer service communications, notifications, and alerts.

- **Network Connection:**
  Service providers can use their preferred network such as a VPN or secure wireless networks to connect to PI System Interfaces or Connectors to link to customer data sources.

The PI System enables key business solutions
Key Components of the PI System for Service Providers

Service providers can take advantage of the entire capabilities of the PI System.

• **Extensive Data Collection Capabilities:**
The PI System has 400 standard interfaces to link to commonly used data sources sensors, DCSs, SCADA, systems, energy management controls, servers, networks, and databases.

• **Central Storage and Enhanced Data Management:**
The PI Server™ receives, archives, and distributes real-time, historical process data, and information from other sources needed to analyze customer operations and make timely recommendations.

The PI Server’s **Asset Framework (AF)** organizes assets into a convenient hierarchal structure to allow service personnel to identify customer assets and associate these elements with real-time, relational, or calculated data to speed analysis and feed contextualized and correlated data service provider advanced analytic programs.

PI Server also includes **Event Frames** to automatically bookmark data to a specific asset, condition and event with a start-up and end time and Notifications which leverages the AF to configure custom alerts based on preset conditions.

• **Data Visualization and Delivery**
The PI System enables service teams to visualize, analyze, and understand data. Here are the key tools:

  • **PI DataLink™:** Enables the use of a web browser to put the PI System data in a Microsoft Excel Spreadsheet format.
  
  • **PI ProcessBook™:** Allows service provider experts to create interactive displays, and compare real-time, historical, and other data.
  
  • **PI Vision™:** Securely and quickly provides access to data from any desktop or mobile device.
To learn more about Connected Services, please visit:

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