



The Standards Based Integration Company



Authorized Value Added Reseller for Europe

SISCO's Utility Integration Bus – UIB Standardized ESB Extensions for Utilities

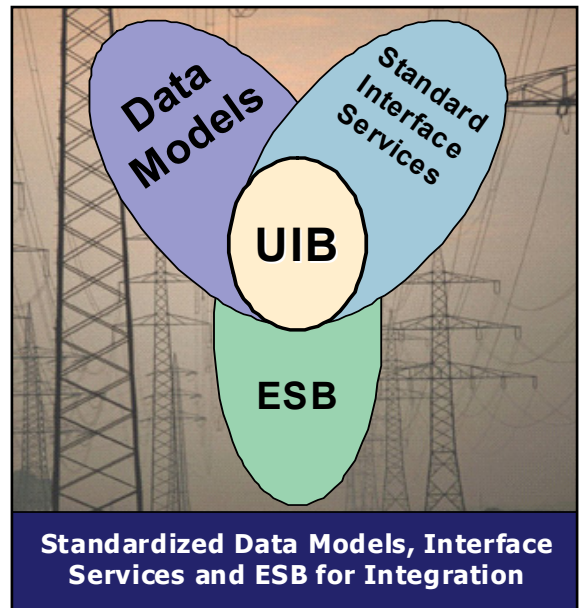
Description

The Utility Integration Bus (UIB) is a standards-based integration platform designed to significantly reduce the engineering effort required to integrate data in the utility environment. The UIB extends an off-the-shelf Enterprise Service Bus (ESB) with industry specific extensions for distributed system data models, standards-based interface services and application programming interfaces (API) using XML messaging. The UIB enables your enterprise with model driven business transformation (MDBT) while leveraging existing application investments.

SISCO's UIB products include off-the-shelf adapters as well as toolkits for building custom adapters for your own applications. SISCO UIB adapters are currently available on IBM WebSphere for the OS/soft PI System, ICCP-TASE.2, and any communications protocol or application using an OLE for Process Control (OPC) interface. Our OEM partners have developed adapters for power system model management and advanced power applications like power flow, state estimators, etc.

Benefits

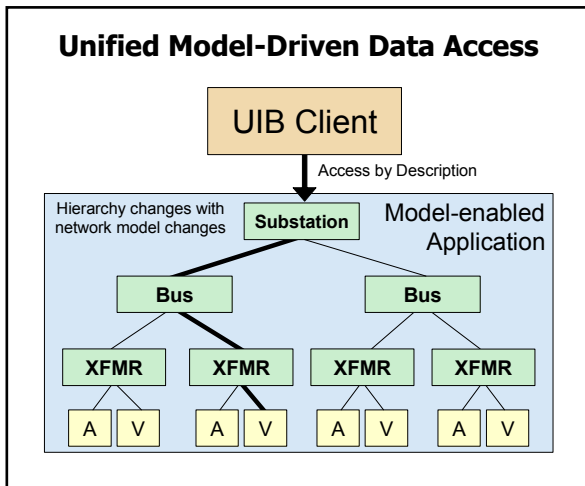
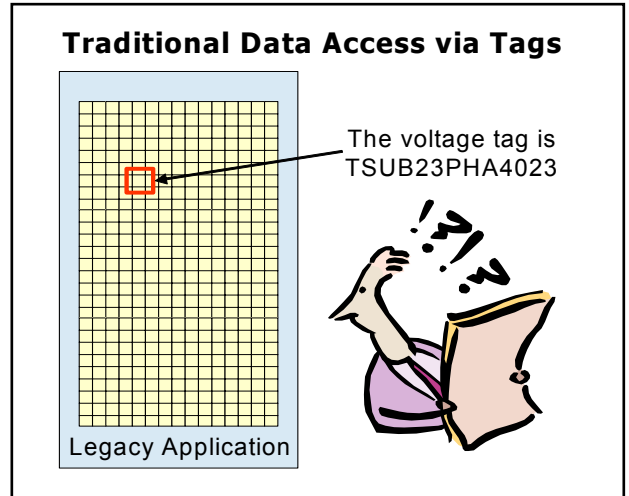
- Extensive support for international standards means less reliance on proprietary technology and enables use of off-the-shelf applications:
 - IEC61970 and IEC61968 Common Information Model (CIM) including CIM XML full, incremental, and partial model transfer formats.
 - IEC61970 Component Interface Specification (CIS) API (or Generic Interface Def'n – GID)
 - OLE for Process Control (OPC)
 - eXtensible Markup Language (XML)
 - Object Management Group (OMG)
- Model-driven ESB-based architecture minimizes application adapter costs:
 - Common data exchange model minimizes data transformations and provides global context for information.
 - Isolates integration adapters from application data storage and representation enabling incremental integration of systems.
 - Enables merging of application data to create unified views of utility operations.
 - Eliminates application specific dependencies that isolate integration adapters from changes in other system components.
 - Reduces integration configuration by enabling application adapters to discover data without requiring knowledge of each data source.



Benefits (cont'd)

UIB: Model Driven Integration for Utilities

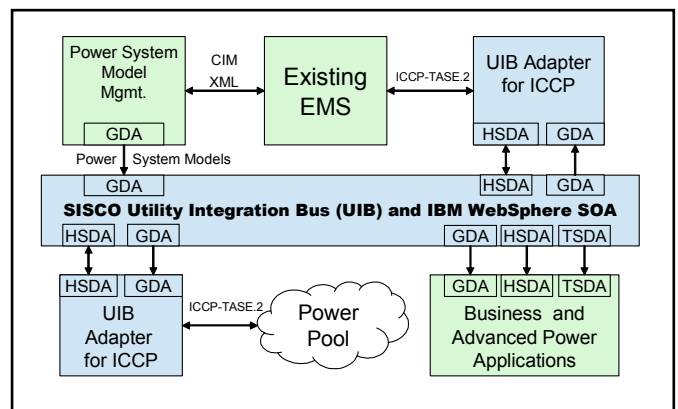
Legacy applications represent data as a set of flat tags. In order to access data, the user (or application) must know the tag name for each data value they access. Users have typically developed their own proprietary tag naming conventions to add some context to these arcane tag names. These tag name conventions are unique to each user. Applications that need this data must either be programmed to understand these proprietary tags or must use data transformation tools that transform the data for each application-to-application data path. As the system changes over time due to new data points being added, data moving from one application to another, or new applications being added, each individual data transformation mapping must be continuously maintained to reflect the changes in the underlying application data representations.



With a common model-driven approach, applications exchange data in the context of a unified model that hides the details of how data is stored internally in individual applications. The use of a common model allows data from multiple applications to be merged into a set of unified views. Even if the model changes, as long as the relationships between objects in the model remain consistent, applications can still find the data they need by traversing the model. Users benefit because they no longer need to maintain proprietary arcane tag naming conventions. And, by using standardized models for data exchange, such as CIM, users have access to off-the-shelf applications instead of having to write their own or pay vendors to customize their applications to accommodate proprietary data conventions.

An Example Application

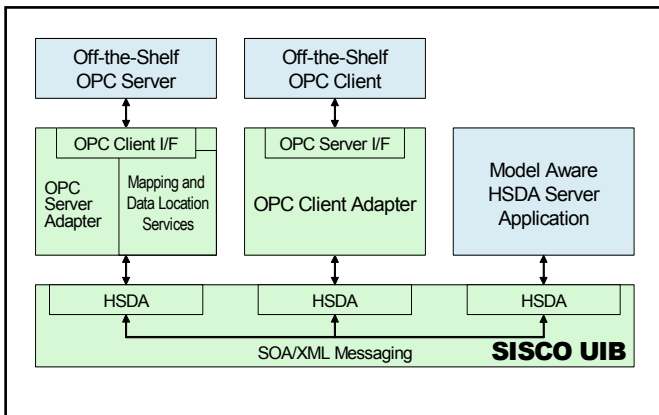
The system shown to the left is taken from an actual implementation for a southern U.S. utility. They had several proprietary applications that they needed to integrate with their existing EMS and wanted to integrate new advanced power applications with their system. Their current system was difficult for them to maintain because each revision of the EMS required them to change their own applications in order to maintain interoperability. Moreover, because the power system modeling function was buried in the EMS, they could not share the power system models with other applications. With the UIB model-driven approach and an off-the-shelf model management system, they are able to maintain the power system models outside of the EMS and share the models with other applications. When changes are made to the power system model, all applications are notified via model change messages distributed by the UIB. With all the modeling information exposed, the ICCP interfaces are able to configure all the ICCP data values automatically and to maintain their configuration over time greatly reducing the maintenance effort by the system engineers.



UIB: Standards Based Interface Services

The UIB utilizes standards based interface services and APIs. This enables the adaptation of many existing off-the-shelf application products from hundreds of suppliers for use in a UIB based system. But, the UIB goes beyond simply supporting the standardized APIs. The UIB also enables these existing products to present their data to other applications on the UIB in the context of the common data exchange model, *even if they haven't been designed to support a model-driven approach*. SISCO adapter based object mapping wraps the existing non-model aware data source with a model aware view of the data so that UIB applications do not have to understand how other applications represent data. SISCO's UIB then adds location services to hide the details of where applications are on the bus. The result is an application integration architecture that provides all data in the context of the model that is independent of how the data source stores data or where it is located. You can then add, change, or move data sources and applications on the bus without affecting all the previous integration work.

API Name	Acronym	Description
Generic Data Access	GDA	Based on the Object Management Group (OMG) Data Access Facility (DAF) specification, GDA is used to access and modify model data in a model server and supports model change notifications.
Generic Eventing and Subscriptions	GES	Based on the OPC Alarm and Events (AE) specification, GES is used to publish and subscribe to XML messages using data in the context of a unified model.
High Speed Data Access	HSDA	Based on the OMG Data Access for Industrial Systems (DAIS) and the OLE for Process Control (OPC) Data Access (DA) specifications, HSDA is used for the exchange of real-time data in the context of a unified model.
Time Series Data Access	TSDA	Based on the OPC Historical Data Access (HDA) specification, TSDA is used to access time-based data from a historian in the context of a unified model.

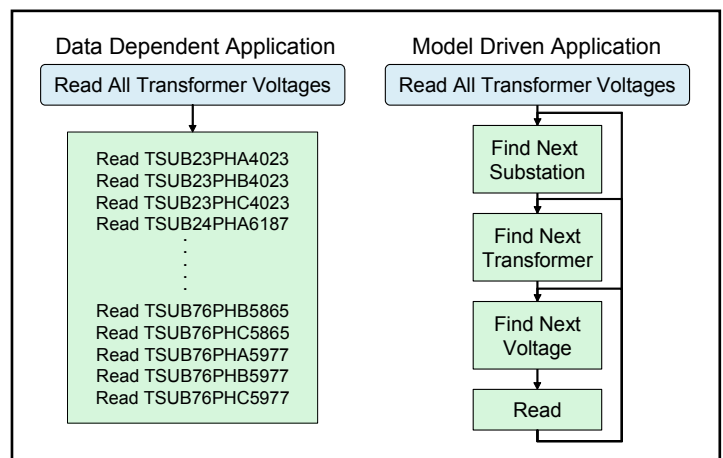


UIB Interfaces: Enhanced Interoperability

The UIB interfaces present data in the context of a common data exchange model, which isolates the applications from the internal storage, representation, and location each data element on the bus. The result is a vastly improved integration architecture that can accommodate existing off-the-shelf programs that support the popular OPC specification without losing any of the benefits of the model driven architecture offered by the UIB. Applications become more like plug'n'play increasing choices and options for the user and lowering system implementation and maintenance costs.

UIB: Data Independence

With traditional approaches, applications must be pre-programmed with tag names in order to access data. Even using a table driven methodology, applications remain dependent on the internal representation and storage of data because the tables need to be maintained. With the model-driven approach of the UIB and its interface services, applications become completely independent of the internal representation and storage of data by other applications. Instead, applications discover the data they need by finding it in the model reducing or eliminating configuration and increasing application reusability.



UIB Products

- ❑ **UIB Toolkit.** Provides everything the application developer needs to build and test application adapters supporting the standardized UIB APIs.
- ❑ **UIB Deployment License.** Includes all the run-time components needed to deploy a UIB enabled application. Available with or without the programming APIs.
- ❑ **UIB Adapter for ICCP.** Provides a model-driven UIB compatible interface to the ICCP-TASE.2 protocols.
- ❑ **UIB Adapter for PI.** Enables data in the popular PI System from OSIsoft to be viewed and accessed within the context of a data exchange model.
- ❑ **UIB Adapter for OPC Server.** Interfaces any off-the-shelf OPC DA server to any OPC DA or HSDA client application over the UIB. Provides UIB access to the hundreds of communications protocols for which an OPC DA server exists.
- ❑ **UIB Adapter for OPC Client.** Interfaces any off-the-shelf OPC DA client application to any OPC DA or HSDA server application over the UIB. Allows the use of existing OPC enabled clients in a model-driven enterprise integration architecture.
- ❑ **UIB Virtual Data Warehouse.** The VDW enables legacy data sources based on RDBMS to be migrated to a CIM based environment that can be distributed over the UIB using standard interfaces.

About SISCO

SISCO, Inc. is a private company founded in 1983. SISCO has established itself as a leader in standards-based real-time integration and communications technologies serving the energy and automation industries. SISCO's products are widely used in many mission critical applications from electrical transmission systems to material handling. We work with both end users and OEMs serving those end users. SISCO's ability to partner with other OEMs and integrators allows us to deliver more capabilities at a lower cost resulting in better solutions for you. Today SISCO has demonstrated leadership and capabilities to provide solutions in the following areas:

- ❑ Model-driven integration technology based upon advanced publish/subscribe and object oriented technology for enterprise integration of heterogeneous applications in the operations environment.
- ❑ Real-time communications and networking based upon open international standards such as:
 - Inter-control Center Communications Protocol (ICCP) per IEC60870-6 TASE.2 for control center integration and power plant dispatching
 - IEC 61850 for substation automation



4 – Oct 08



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