



Connecting our customers to information

SISCO CIM Solutions Overview

SISCO, Inc.
6605 19-1/2 Mile Road
Sterling Heights, MI 48314-1408 USA
Te;l: +1-586-254-0020
<http://www.sisconet.com>

About SISCO

- Founded in 1983
- Founding Member
 - CIMug/UCAIug
 - SGIP 2.0
- Standards:
 - » IEC TC57;
 - CIM (IEC 61970/61968)
 - IEC 61850
 - ICCP-TASE.2 (IEC 60870-6)
 - » IEEE PES PSRC
- Focus:
 - » Helping customers create value with open interoperable standards by providing solutions based on knowledge, experience and innovation.



CIM Experience

- Involved in CIM standards development since 1995 including EPRI, IEC, CIMug and IEEE development and testing activities
- AEP – gridSMART project: Training, Use Case Development, Profile Development and Messaging Design for:
 - › Advanced Metering Infrastructure (AMI)
 - › Meter Data Management (MDM)
 - › Customer Information Systems (CIS)
 - › Real-time Pricing (RTP)
 - › Outage Management Systems (OMS)
 - › Work Management Systems (WMS)
- FGC – CIM Model Distribution over ESB
- SCE – C-RAS project: Wide area protection IEC 61850 GOOSE with CIM messaging between EMS and CRAS controllers.
- EPRI, Dong Energy, BPA, Detroit Edison, China Southern Grid, KEPCO, Transpower, DTE Energy, CAISO and others
- CIM product solutions since 2000

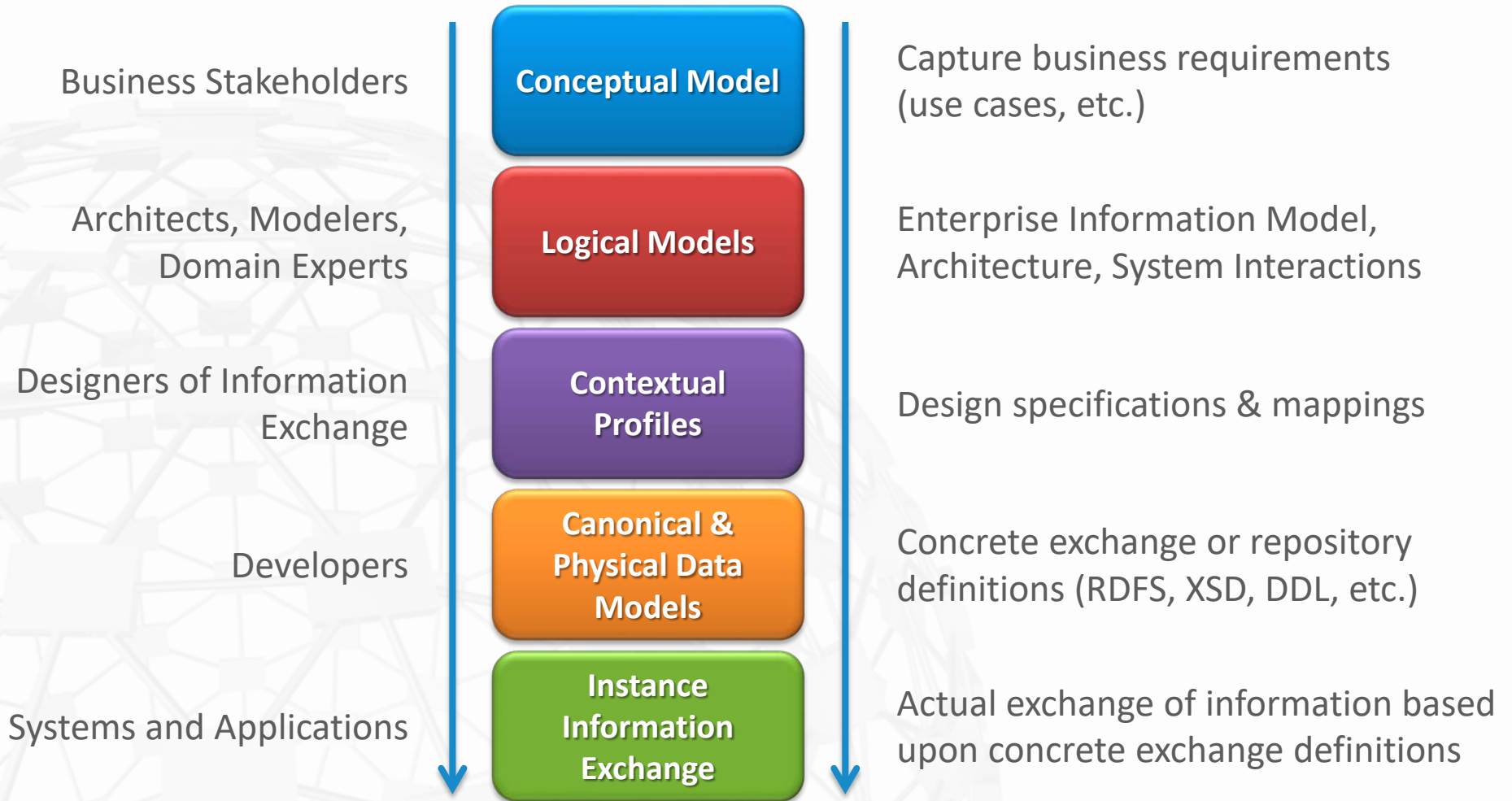
SISCO Knows How to Make CIM Work for You with Grid Smarts

- A unique combination of knowledge, experience and products that provides your organization with the capability of extracting the value of CIM and adding it to your organization
 - » Detailed understanding of how CIM works
 - » Innovative thinking about how to apply CIM and model-driven application integration to provide solutions
 - Using CIM for PI AF Modeling
 - CIM – IEC 61850 integration/harmonization
 - CIM modeling tools for Micro Grid solutions
 - » Capability of delivering solutions while building staff knowledge
 - » Solutions that use open and interoperable interfaces
 - » Ability and willingness to partner with your existing partners

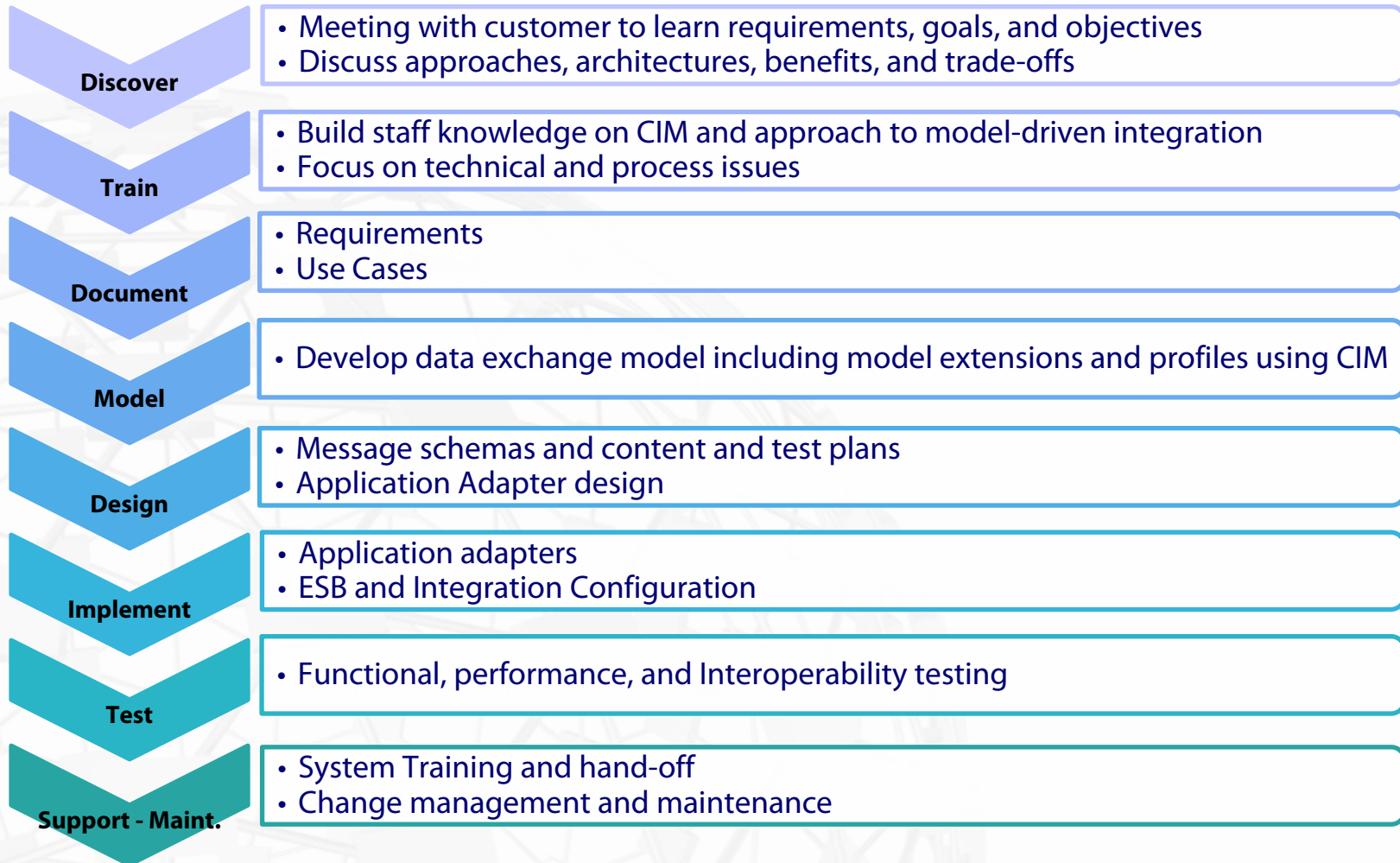
SISCO Capabilities

- Common Information Model
 - » CIM based messaging for smart grid integration
 - » CIM Adapter for OSIsoft PI enables CIM based model-driven application integration
 - » CIMatic Designer add-in for Visio for Micro Grid projects
- Training, adapter/application, development, and systems integration services to assist customer in the exploiting benefits of model-driven integration based on these technologies.
- Communication Protocol Software for:
 - IEC 61850
 - ICCP-TASE.2

Solution and Product Methodology



SISCO's Interoperability Based CIM Integration Process

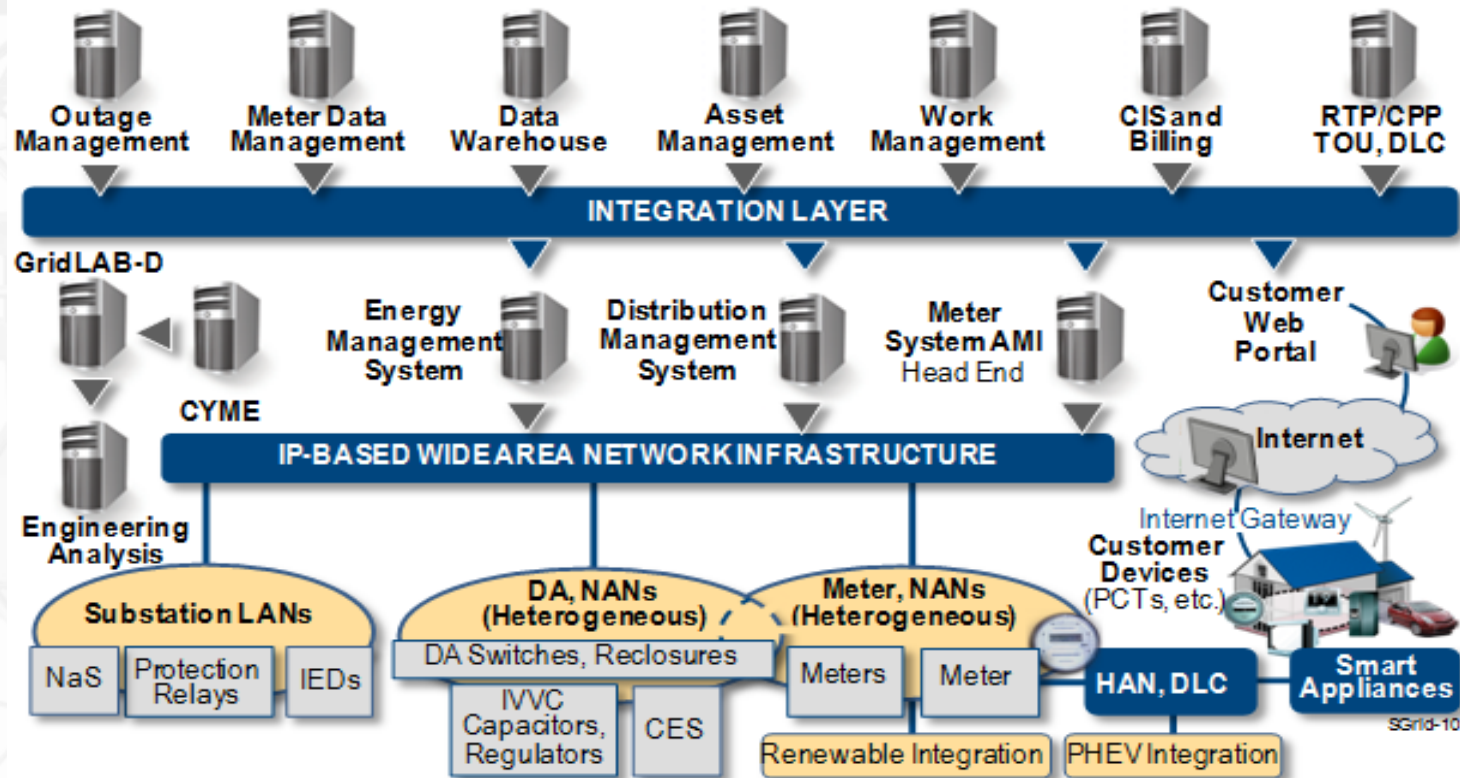


SISCO's Interoperability Based CIM Integration Process

- It is about building a framework for long-term incremental integration based on IEC 61968.
- Increasing productivity by moving the effort from maintaining numerous ad-hoc integration points to maintaining an enterprise semantic model.
- SISCO's Interoperability Based CIM Integration Process develops a long-term cost-effective strategy that can be implemented incrementally across multiple systems.

AEP gridSMART Project

- A multi-year program at AEP to implement smart grid technologies across their enterprise:



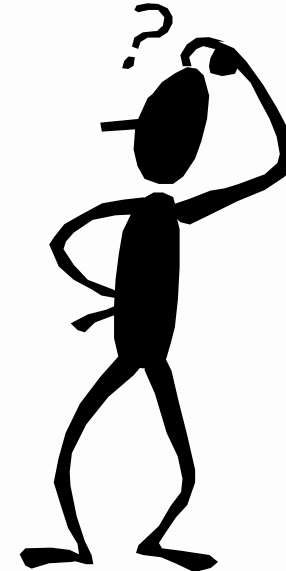
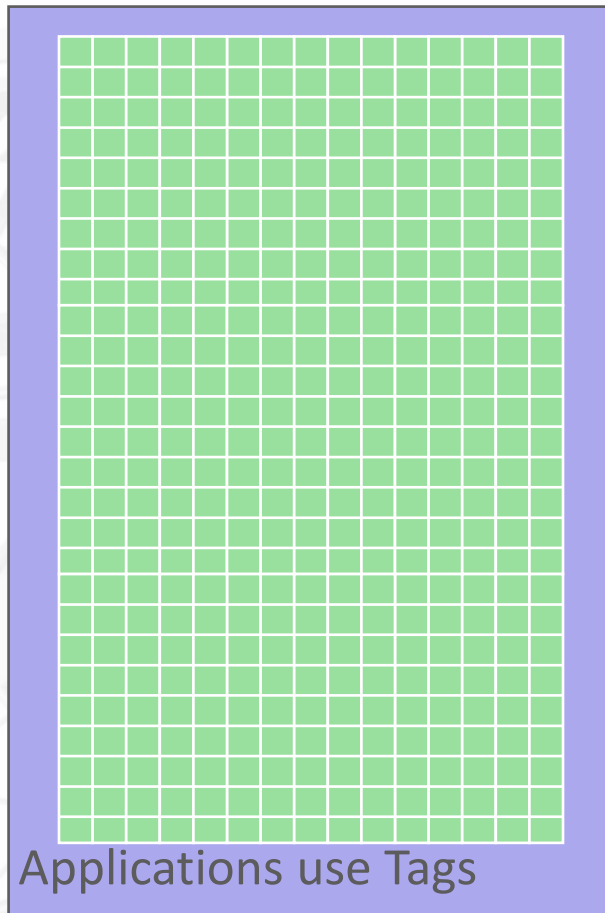


Connecting our customers to information

Using CIM for Data Modeling

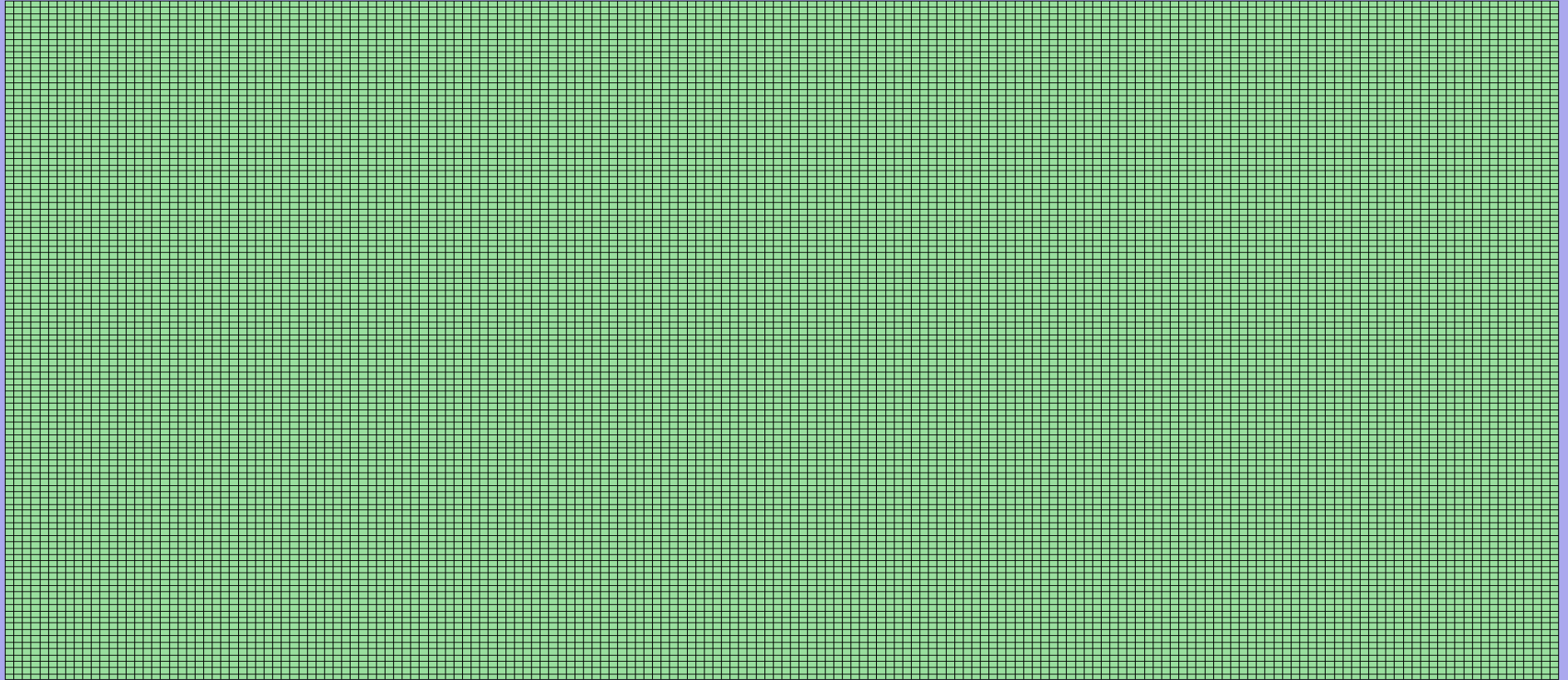
SISCO's CIM Adapter for OSIsoft PI AF

The Legacy Data Model Has Always Worked



Why do I want the “complexity” of the CIM and all this modeling stuff?
Tags are simple!

Scale The Legacy Data Model Up to the Smart Grid



Utility

If it takes 15 seconds to configure a tag, it would take 26 man-years to configure 2M meters!

How do users handle this today?



With lots of paper documentation and manual maintenance effort subject to manual error detection and correction.

Data Dependent Application

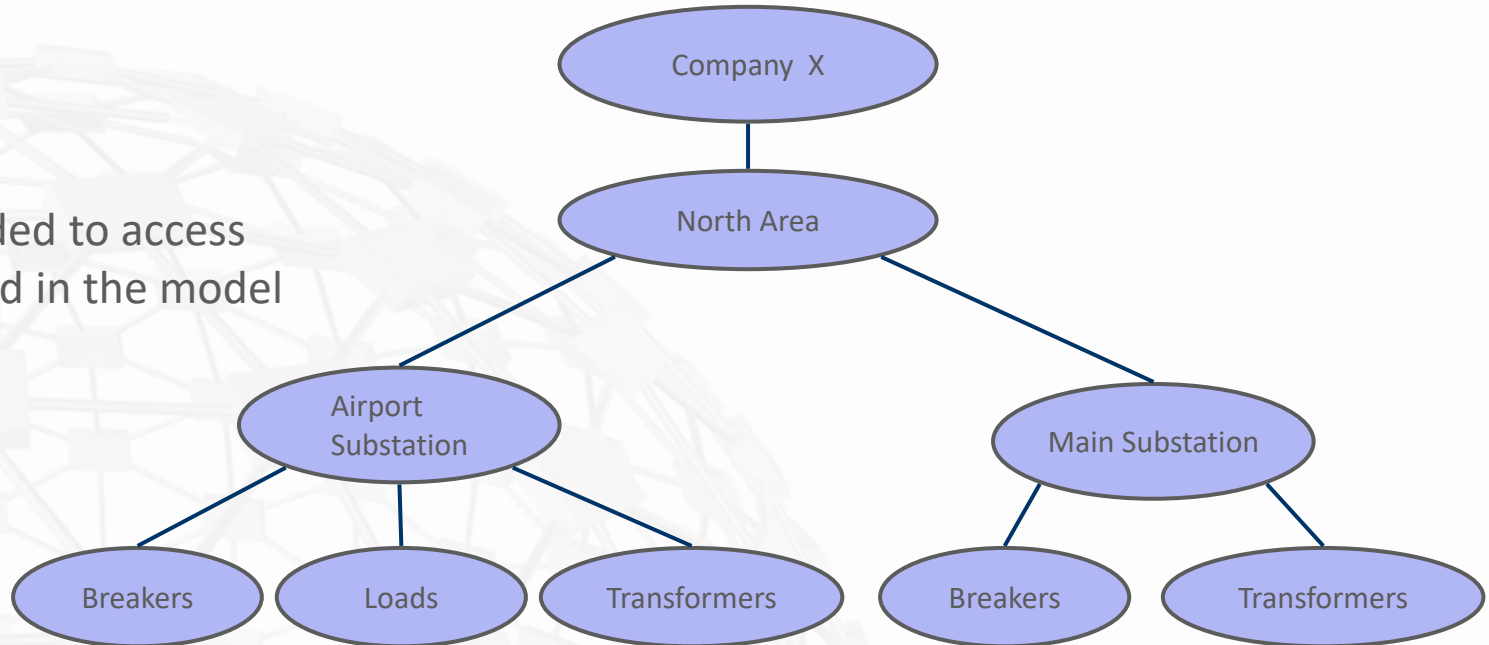
Read All Transformer Currents

Other algorithms possible.
But, regardless of algorithm,
non-model driven programs
contain hard coded
references to either names or
tables to access.

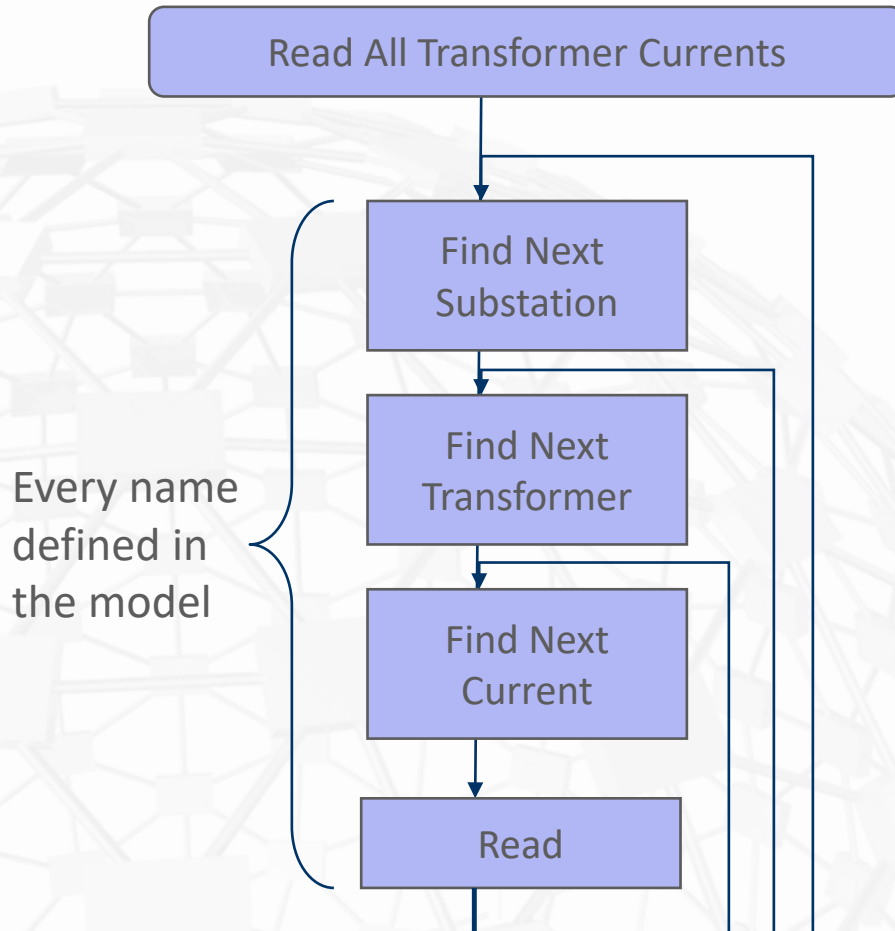
Read TSUB23PHA4023
Read TSUB23PHB4023
Read TSUB23PHC4023
Read TSUB24PHA6187
.
.
.
.
.
Read TSUB76PHB5865
Read TSUB76PHC5865
Read TSUB76PHA5977
Read TSUB76PHB5977
Read TSUB76PHC5977

CIM as a topic tree

Everything needed to access data is contained in the model



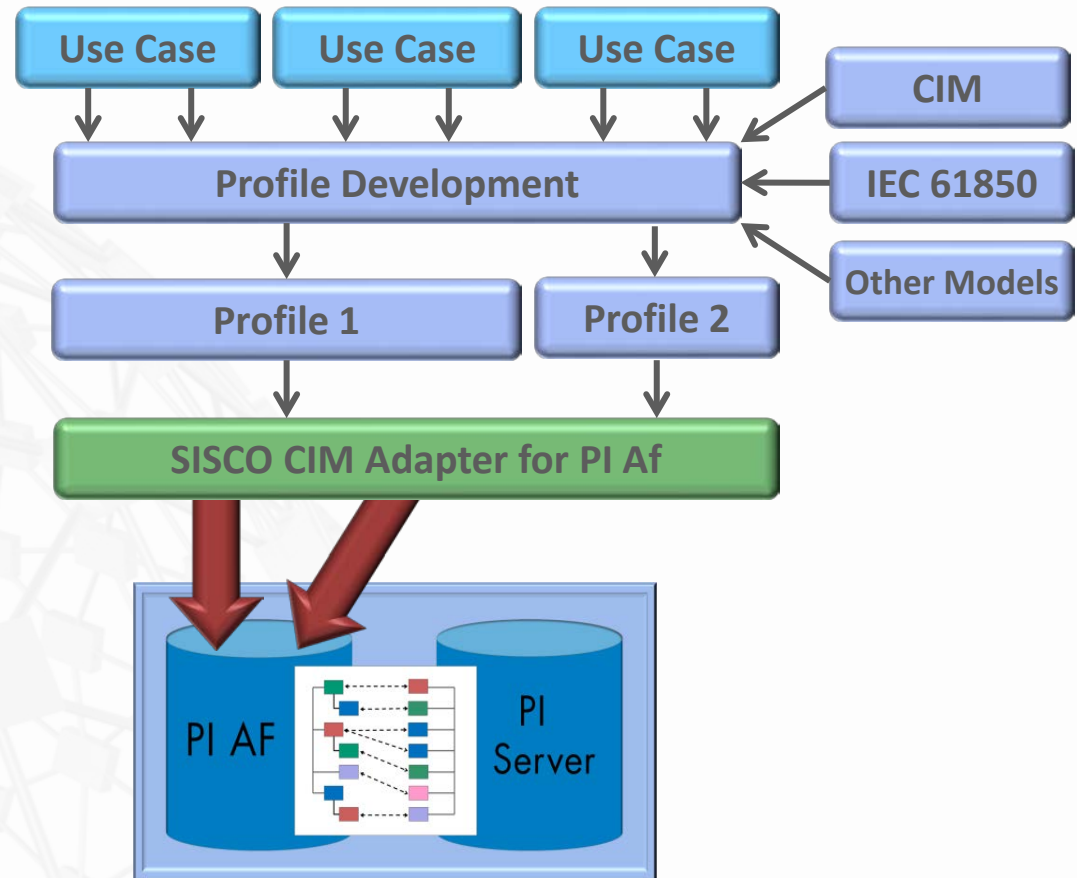
Model-Driven Application Development



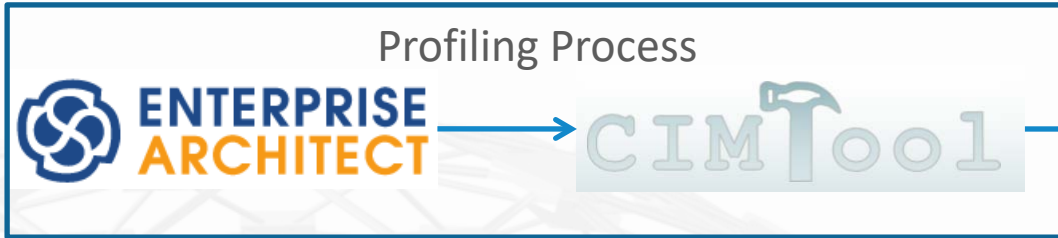
- Reduce application maintenance dramatically using CIM:
 - » Transform from maintaining tags and tag references in applications to:
 - » Maintain a common semantic model (CIM) instead for scalability

CIM Adapter and PI AF Deliver Flexibility

- Multiple use cases can be addressed with one profile.
- Multiple profiles can be supported for use cases that can't share a profile
- PI AF is flexible to support many models
- A disciplined modeling process with SISCO CIM Adapter brings it all into the PI System

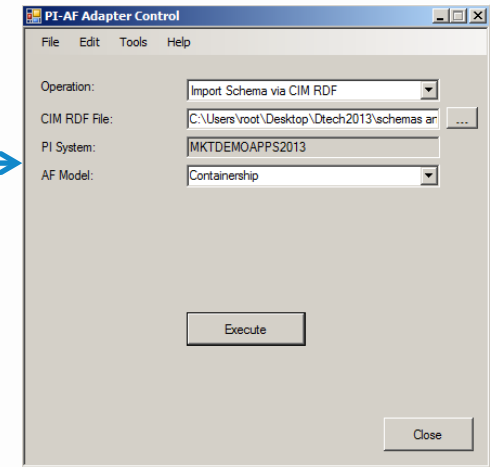


General CIM Adapter Process

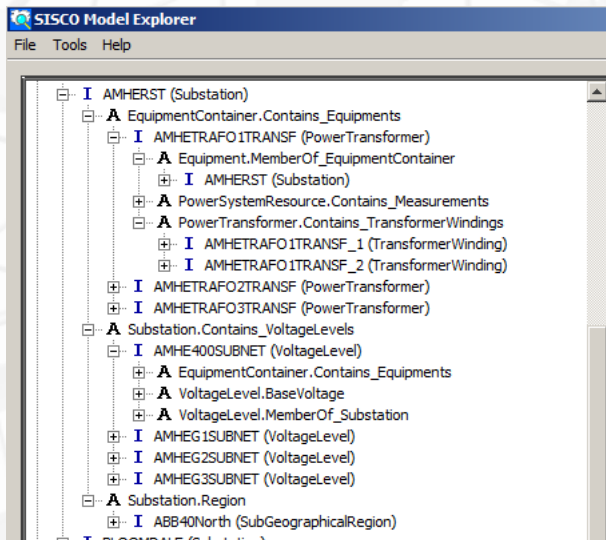


Augmented
RDFS

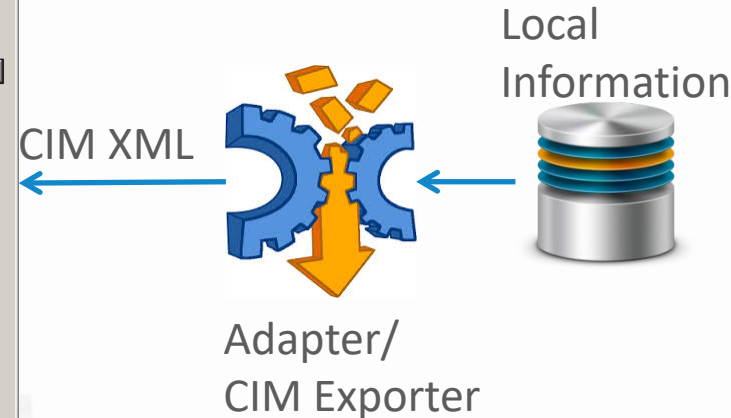
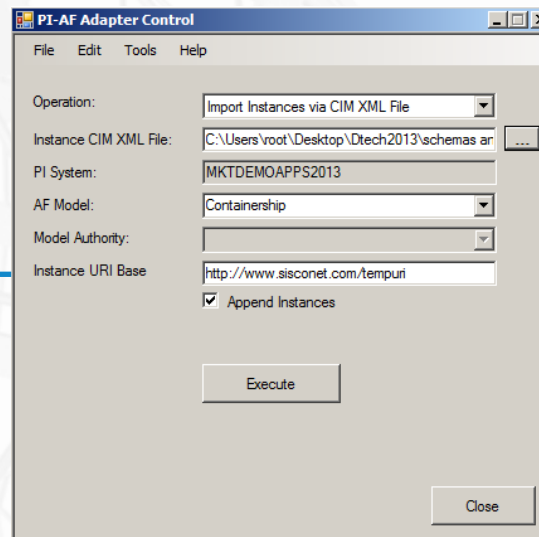
Import Schema into AF



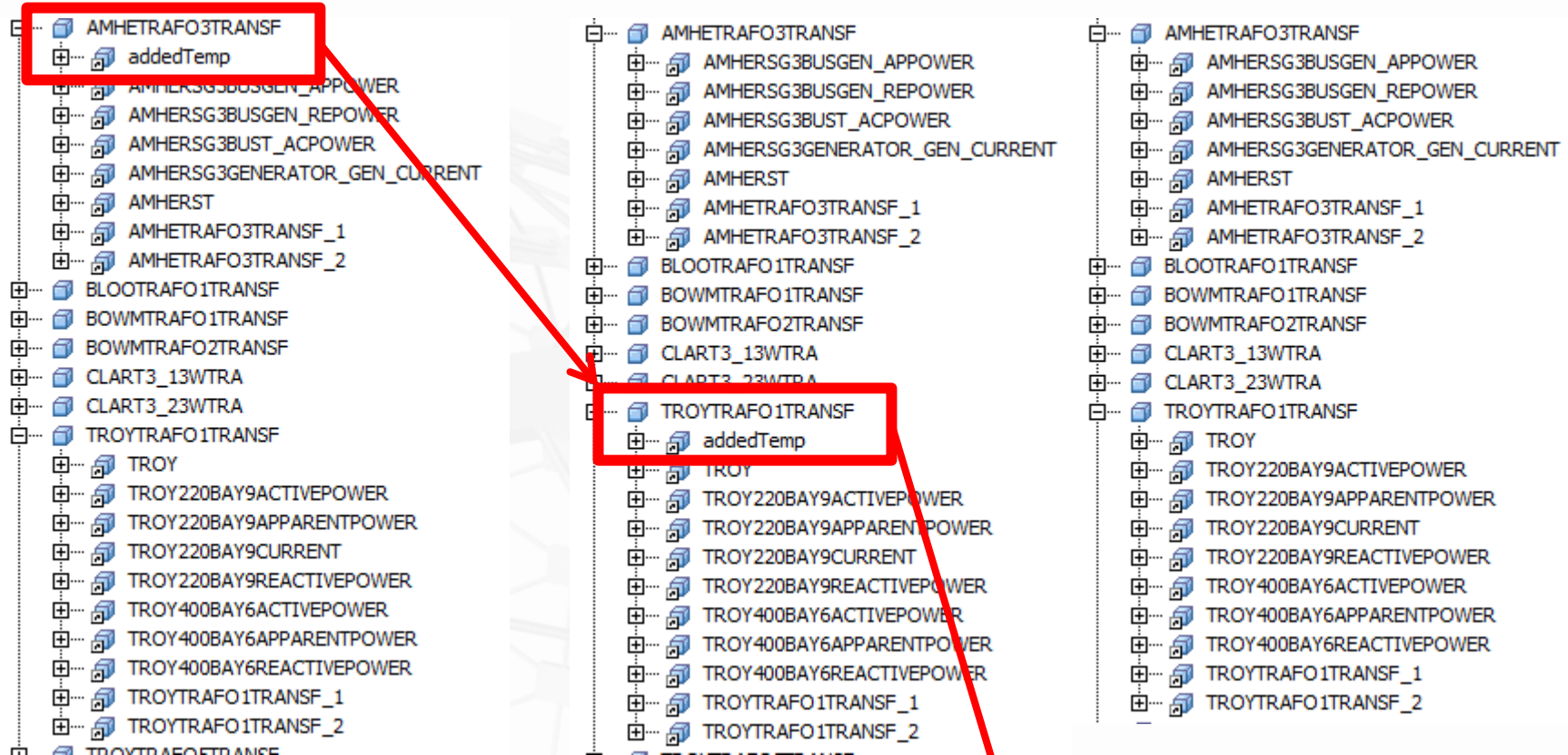
Results in full AF Database



Import Instances



Add, Move, then Delete a Measurement



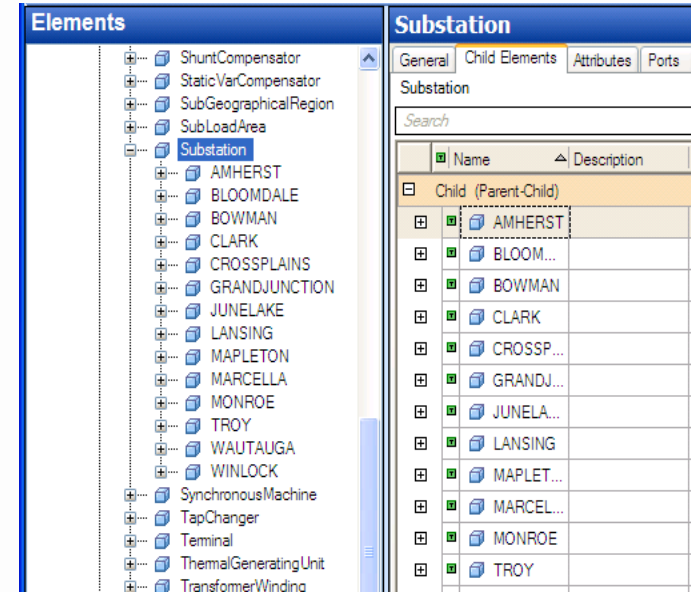
Add

Move

Delete

Summary

- CIM is a pre-existing standardized utility oriented data model that provides a platform to build an application data model that addresses enterprise level needs.
- PI AF and SISCO CIM Adapter provide an excellent foundation to support effective application of application data models for utilities.



Business Challenge

- Taking advantage of application data models that meets individual group needs while supporting enterprise wide integration and data sharing that can be adapted to changes.

Solution

- PI AF to organize all PI System data
- SISCO CIM Adapter to automate PI AF modeling
- CIM based model driven process to manage change

Results and Benefits

- A single enterprise level model for PI AF that can be optimized for individual application needs
- Flexibility to minimize effort adapting to change



Connecting our customers to information

New Applications for CIM

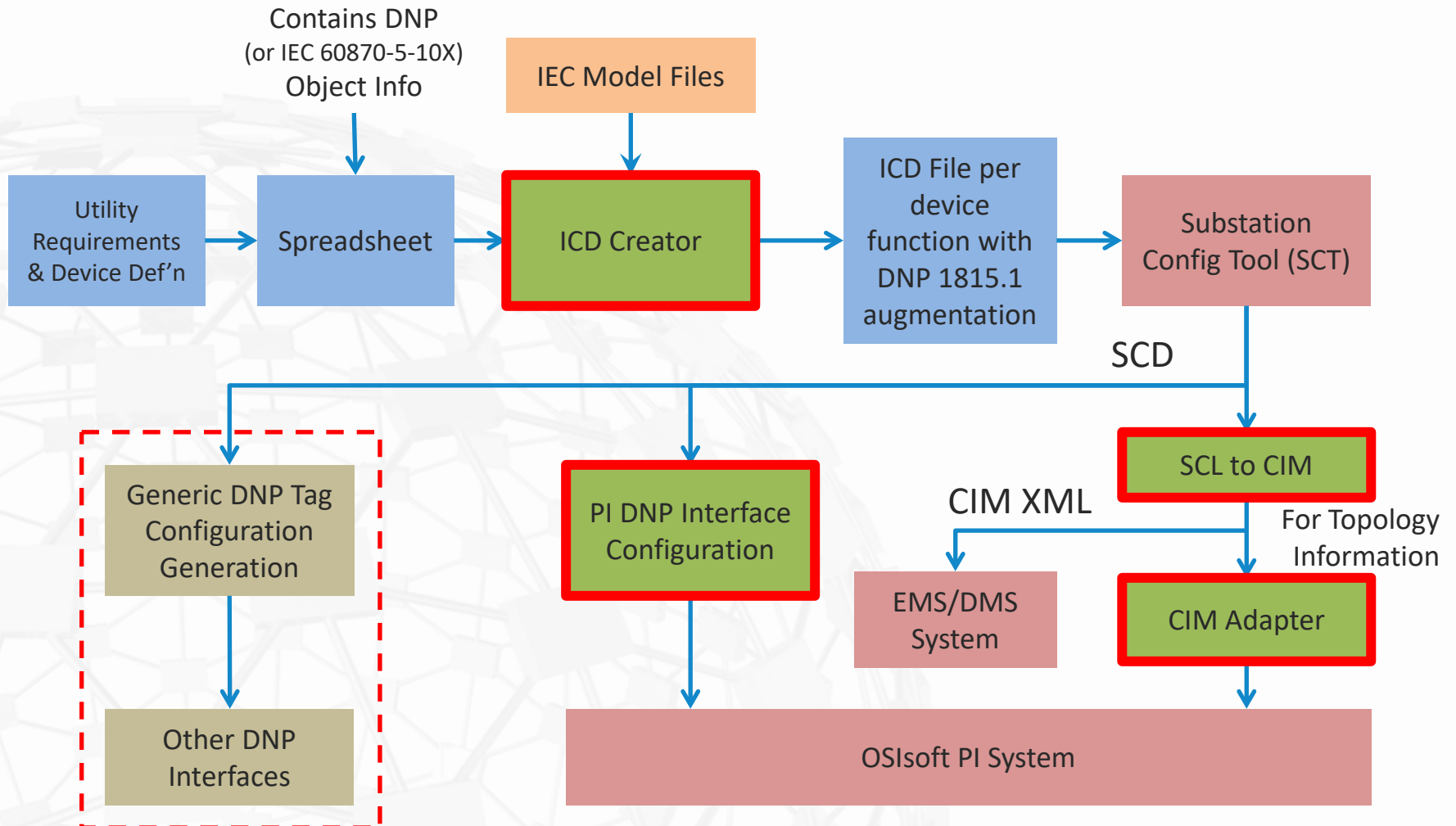
CIM-IEC 61850 Harmonization

CIMatic Designer for Visio

New Projects – New Uses of CIM

- Working to merge non-CIM (parent child) with CIM models (mesh/association based) to apply IEC 61850 tag naming conventions for a utility's current OSIsoft PI Tags
- Developing solution to utilize DNP, CIM and IEC 61850 to auto-generate IEC 61850 ICD files using IEC 61850 UML
- Graphical CIM model development and management for MicroGrids using SISCO's CIMantic designer

Application of IEC 61850 – CIM Harmonization



CIMatic Designer – CIM Modeling for Micro Grids

- Supports graphical model generation using Visio: Just draw the model and the CIMatic Designer does the rest
- Generates CIM-XML from the graphical model:
 - » Full model generates a new CIM-XML for initial load of the model
 - » Incremental model generates a change file for keeping systems synchronized as they change over time
- Works with any CIM compliant application including SISCO's CIM Adapter for PI AF for rapid application deployment

SISCO CIMatic Designer for Model Entry

Visio Add-In

Schema

The screenshot displays the Visio Professional interface with the SISCO CIMatic Designer add-in installed. The ribbon includes tabs for FILE, HOME, INSERT, DESIGN, DATA, PROCESS, REVIEW, VIEW, and DEVELOPER. The SISCO logo and 'CIMatic Designer' text are visible in the ribbon. A blue arrow points to this add-in. On the left, a 'SHAPES' pane lists various electrical symbols like ALineSegment, Breaker, BusbarSection, etc., with a blue arrow pointing to it. The main workspace shows a detailed electrical schematic with components like PMU1, PMU2, breakers (F1-F4), busbars, and buildings (Mech Building 11, Life Science Building, Eng BLDG #19, Vista 1B Stuart, Vista 1C Stuart). Manholes (E-44, E-49) and poles (SW #5) are also shown. The text 'Instances and relationships' is overlaid on the diagram area.

Extending an Existing Model

Edit the model in standard UML and start from base model from IEC 61970/61968



Choose the appropriate subset - Profile(s)



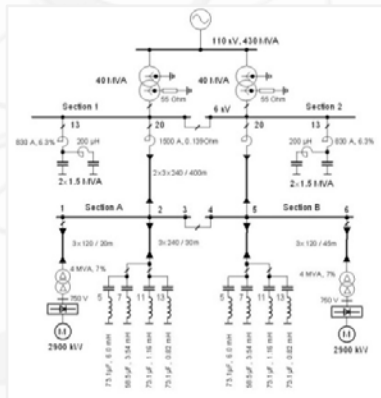
Manages AF Elements and Relationships



Adds CIM to Visio Stencils

SISCO CIMatic Designer

Energy Management System





Connecting our customers to information

Thank You

SISCO, Inc.
6605 19-1/2 Mile Road
Sterling Heights, MI 48314-1408 USA
Tel: +1-586-254-0020 ext.103
<http://www.sisconet.com>