CIM Users Group Spring Meeting

Spring 2011   **Diplomat Hotel, Prague, Czech Republic, May 10–13, 2011**

WELL UNBUNDLED CONNECTIVITY

220 / 400 kV

čeps,a.s.
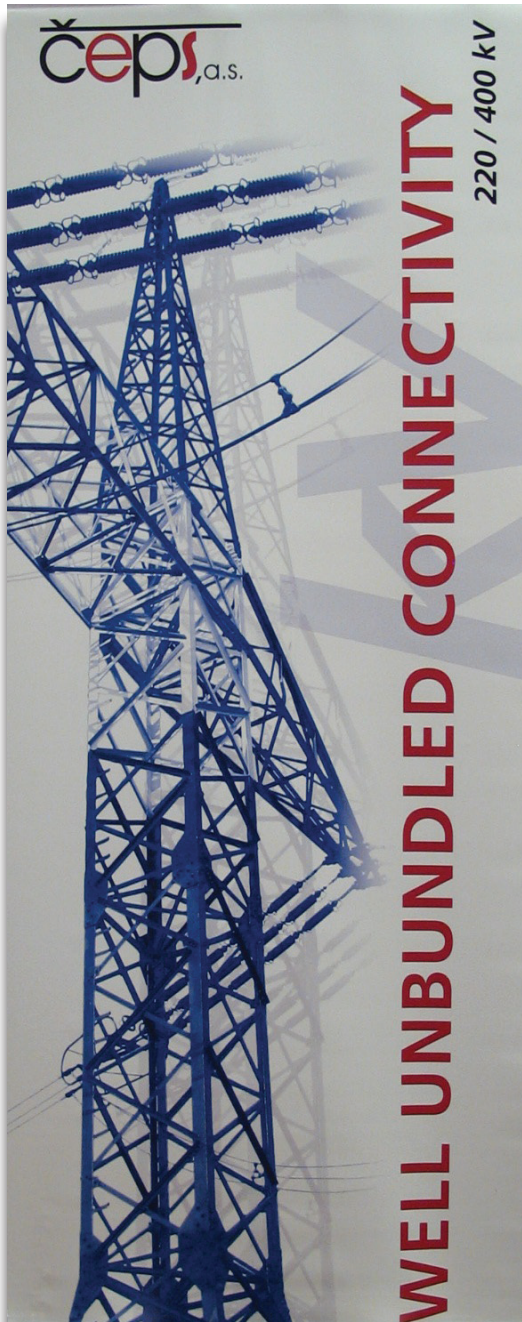
Role of the CIM in the European Commission Mandate for Smart Grid

Meeting Attendance: 35 vendor/consultant companies; 21 utilities; 4 universities. 42 from Europe; 11 from North America; 6 from Asia; 1 from Australia. Utilities: 1 transmission coordinator; 13 TSOs; 3 DSOs; 4 integrated.

Overview

A clear picture was painted by multiple presentations given by a variety of speakers: the Common Information Model (CIM) has an essential role to play in Smart Grid around the world. More than 10 presentations focused on utility efforts: some projects are in the design stage, but many are in the deployment stage with utilities developing CIM expertise and with the CIM facilitating information sharing. A surprising number of countries are viewing the CIM as a basis for national standardization efforts and have an interest not only in locally leveraging the CIM, but also in sharing their work back to the International Electrotechnical Commission (IEC) Technical Committee (TC) 57 standards Working Groups.

Clearly the scope and urgency of the European Network of Transmission System Operators for Electricity (ENTSO-E) initiatives related to operational information sharing and its energy market is driving the interest in and use of CIM for Transmission information sharing across Europe.

Several presentations focused directly on the European Commission's (EC's) mandate M490, which requires the European standards organizations to address Smart Grid reference architecture, standards and standards processes. M490 bears a great deal of resemblance to the United States Federal Energy Regulatory Commission (FERC)-mandated Smart Grid work being done under the NIST Smart Grid Interoperability Panel (SGIP). European M490 efforts are probably 18 months behind the US SGIP work and will afford further opportunities and drivers for standard refinement.

Harmonization of the CIM and other standards was the topic of several presentations and the need for CIM and 61580 harmonization was a theme repeated by numerous speakers.

All presentations can be downloaded from the CIMug website: www.cimug.org. Hover your cursor over *Meetings* then *Past Meetings* and select *Prague 2011 Meeting.* From the Prague Meeting page, select *Meeting Documents.*

Setting the Stage
Keynote: Grid Operations Control & ICT

Miroslav Vrba, Member of the Board of the Czech Republic Transmission System Operator (ČEPS), overviewed the significant new challenges facing ČEPS:

- wind power from the North Sea, resulting in a critical 10GW seasonal increase in flow from the north thru the Czech Republic toward Germany
- photovoltaic boom in the Czech Republic, causing swings requiring activation of both – and + ancillary services
- ENTSO-E required grid upgrade
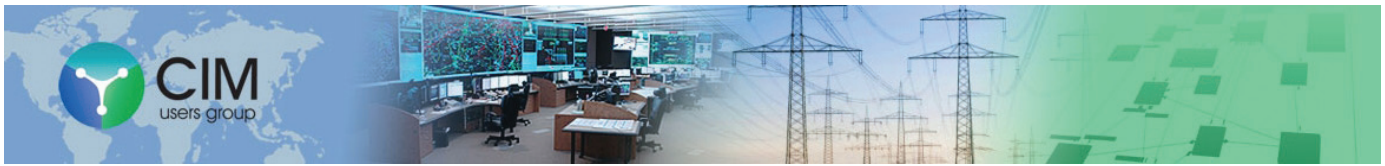
ČEPS experience with the Inter-Control Center Communications Protocol (ICCP) standard for real-time data exchange has been positive, but offline model data exchange with other entities continues to be a puzzle. CIM Extensible Markup Language (XML) looks like a promising option, though it is neither a quick nor easy solution.

Presentation:
Day 1 > 01-CIM Users Group Spring Meeting_Keynote_Vrba

Keynote: Role of IEC TC 57 and the Smart Grid
Thierry Lefebvre, Chairman of IEC TC57, shared the IEC TC57 vision that two standards, the CIM and 61850, are basic components in the Smart Grid architecture. CIM provides the common semantics for application-to-application information exchange and 61850 supports device communications. Several collaborations are underway between TC57 standards and other standards bodies which will clarify, refine and strengthen the role of CIM and 61850 around the world:

- National Institute of Standards and Technology (NIST) (in the US) has many Priority Action Plans (PAPs) related to TC57 standards
- European Committee for Electrotechnical Standardization (CENELEC) (in Europe) and TC57 working together on European Commission (EC) mandates related to Smart Grid standards
- IEC Strategic Group 3 (SG3) has recommended speeding up CIM and 61850 harmonization

Presentation: Day 1 > 02-IEC_TC57_and_SG-presentation to ECIMug-Prague

European Smart Grid Task Force
Laurent Guise, Chairman of European Smart Grid Task Force, reported that a number of drivers (sustainability, security of supply, competitiveness) call for restructuring of the European grid operation. The EC has issued multiple electric utility industry directives, including, most recently, mandate M490 related to Smart Grid standards, which requires the European standards organizations (European Committee for Standardization (CEN)/CENELEC, European Telecommunications Standards Institute (ETSI)) to address technical reference architecture, a set of consistent standards and a sustainable standardization processes. A joint Smart Grid Coordination Group and underlying Teams and Working Groups are working to meet the required 2012 execution deadlines. Gaps have been identified and international collaboration is a priority.

Presentation: Day 1 > 03-M 490 – Standardization in Europe for CIM users group V0

Utility Insights
Smart Grid: ADDRESS Project
Eric Lambert, EdF, and Cyril Effantin, EdF, jointly presented on the Active Distribution network with full integration of Demand and Distributed energy RESourceS (ADDRESS) project, whose goal is the active participation of European Union (EU) energy consumers in the market. The multiple companies participating in ADDRESS have followed a comprehensive methodological framework from business use cases to message modeling. A solution has been created that is capable of integrating information from Distribution System Operator (DSO), Transmission System Operator (TSO), Centralized Producer, Retailer, Aggregator, Energy Box and Market systems. Unified Modeling Language (UML) role models and use cases (based on WG14 conventions), a CIM-ADDRESS UML model and XML messages were used. Prototype interoperability testing has been done through Service-oriented Architecture (SOA) + IEC61968 Parts1 and 2 standards.

Presentation: Day 1 > 04-CIMug_ADDRESS_Project may2011

Smart Grid: CIM Standard for Substation Automation System
Janko Blatnik, GDB d.o.o, Slovenia discussed the conceptual work that he and Veronika Brundula, Universidad Simón Bolívar, Caracas, Venezuela have done relating to CIM and 61850. To achieve the Smart Grid vision of near–real time information, a transformation of the power grid communication infrastructure is needed, particularly in transmission and distribution substations. Supervisory Control and Data Acquisition (SCADA), which is not scalable to support the next-generation intelligence required in substations, needs to be replaced with a flexible 61850 and CIM approach. Architectures, technologies and standards exist to support performance, security and redundancy. Integration of CIM and 61850 can support both operations (real-time) information exchange and configuration model exchange, which together allow the integration of both substation and control center.

Presentation: Day 1 > 05-Brundula Blatnik – CIM Standard for Substation Automation System

Smart Grid: Development and Best Practices in the Netherlands

Richard Uijen, TenneT, introduced the Platform Informatiemodel Netbeheerders (PIN), a Netherlands consortium of 7 utilities, whose goal is the definition of a Dutch DSO profile that is maximally dervied from international standards. PIN is developing a Dutch Conceptual model, defining criteria/priorities for standards, selecting relevant standards, contributing to international standards, defining business issues and describing development processes. Understanding and leveraging the governance structure of standards (the roles of international bodies/regional/national enties and local companies) in the definition, management, use and representation of standards is vital.

Presentation: Day 1 > 06-20110511 PIN and Dutch developments 1 0

Smart Grid: Smart Grid Projects in Germany and D-A-Ch

Mathias Uslar, OFFIS, discussed Germany's goal to limit the impact of energy on the environment while still encouraging economic growth, which has led to a big emphasis on energy efficiency and more distributed and renewable energy. Smart Grid (or an intelligent energy supply system) is critical to creating a sustainable and environmentally sound power supply. The German Smart Grid Standardization Roadmap addresses the importance of standards in the Smart Grid, integration with international standards, security, interoperability, regulatory/legislative changes, need for use cases, 61970 and 61850 harmonization, distribution automation, smart meters, electromobilility and building/home automation.

Presentation: Day 1 > 07-2011-05-10-CIMug Prague_Uslar

Asian Smart Grid: CIM Activities as Part of Bureau of Indian Standards and CIM Model Extension for a Regulated Market Scenario

Jose Thomas, Kalkitech, secretary of BIS LITD-10 CIM WG3, in a presentation jointly authored by S.A. Khaparde, president of BIS LITD-10 CIM WG3, and Pradeep Kumar, member of BIS LITD-10 CIM WG3, discussed the implementation of the CIM in the Indian power utilities, which is at the very initial stages. The Accelerated Power Development & Reforms Program (R-APDRP) calls for restructuring of the 20 state-owned power utilities and is funding SCADA and IT implementations for all utilities. The model request for proposal (RFP) for these implementations cites 61970 and 61968 as the integration standards. A standard SCADA/DMS enterprise service bus architecture is being used across all 20 companies. The inter-ministerial India Smart Grid Task Force (ISGTF) has been created to serve as a government focal point for Smart Grid activities and is sponsoring pilot projects and examining the information ecosystem of the Indian power sector. The dedicated working group (WG3) for CIM-related activities under the Bureau of Indian Standards, Committee on Power System Control and Associated Communication (BIS LITD-10) is building use cases, exploring CIM localization requirements and adoption and extension issues.

Presentation: Day 2 > 04-India_BIS_CIMug_Prague_2011

Asian Smart Grid: Role of CIM in Chinese Smart Grid

Yaozhong Xin, State Grid of China Corporation, explained that the State Grid of China (SGCC) is experiencing significant growth: generating capacity is currently 962 GW and is increasing at 100 GW per year, renewables currently make up 34 GW and have been doubling each year. SGCC is implementing a nationwide integration of real-time, day-ahead and management functions on a standard platform across its national control center, 5 regional control centers and 31 provincial control centers. Real-time Dynamic Stability Analysis (DSA) using Phasor Measurement Units (PMUs) drives the need for unified model sharing. SGCC has developed strategies for efficiently exchanging model and graphic data (CIM/E and CIM/G).

Presentation:
Day 2 > 05-Smart_Grid_and_CIM_in_CIMug_Prague_XYZ-2011-05-12

ENTSO-E: CIM used by ENTSO-E, related projects

Chavdar Ivanov, ENTSO-E, explained that the European Network of Transmission System Operators for Electricity (ENTSO-E) is the European TSO Organization which has replaced 5 former regional organizations. It delivers, through its members, the infrastructure to enable markets to function and to secure the energy supply for the European bulk power system. ENTSO-E has responsibility for delivering network codes and plans, supporting market integration and developing an R&D plan, which includes Smart Grid and cooperation with DSOs. ENTSO-E uses the CIM as its data exchange format and organizes yearly CIM interoperability tests for its members and their vendors. Topics for a July 2011 IOP, which will have more than 20 participants, include Model Authority Sets, operations to planning, graphics layouts, recent CIM updates, short circuit data and dynamics. Future initiatives include the creation of a Network Modeling Database.

Presentation: Day 1 >
11-110511_ENTSO-E_presentation_ChavdarIvanov_CIMug_Prague_May2011

ENTSO-E: CIM and EDEX platform

Erik Wolfs, Elia, convener CWE MC IT group and ENTSO-E MADES workgroup, discussed how the interconnected European grid is requiring

more and better forecast calculations/studies and how access to timely and correct data is becoming critical. The Energy Data Exchange Platform (EDEX) is providing interface specifications, basic functionality and best practices for transmitting and processing ENTSO-E messages. EDEX is composed of an Energy Communication Platform (ECP), an Energy Process Platform (EPP) and a Client Toolbox. ECP, which is in use by 13 TSOs, serves as a reference package for the Market Data Exchange Standard (MADES) which focuses on guaranteed delivery and security and defines the platform used for external communication. EPP uses a canonical model, an ESB and standardized interfaces. The Client Toolbox, which provides significant local functionality, will be deployed in the future.

Presentation: Day 2 > 09-20110509_EDEX

ENTSO-E: CIM project in MAVIR

Bence Baji, MAVIR, explained how, to fulfill its ENTSO-E responsibilities, the Hungarian TSO (MAVIR), has developed a UTCE-DEF -> CIM XML converter and a new CIM XML generator module for its EMS. MAVIR is exploring options for meeting the internal model management challenges presented by the combination of ENTSO-E Day Ahead Congestion Forecast (DACF) requirements and existing application limitations. There are a number of open issues including model details, scope and version, validation tools and the need for a stronger CIM community.

Presentation: Day 02 > 09-CIMinMAVIR_Baji_20110512

ENTSO-E: Conversion of Breaker Oriented Model into CIM objects

Karel Máslo, EPS, presented the CEPS experience which found CIM-based files to be large, unreadable and difficult to transfer compared to flat ASCII files. The Dispatcher Training Simulator (DTS), one of the most complex applications in an EMS, requires a great deal of input data to simulate the real power system:

- Load flow data
- Protection, automatics and control equipment data
- Dynamic model data

Creating a Bay object, for model reduction, is the first step to using CIM for model management between bus-oriented and breaker-oriented applications.

Presentation: Day 2 > 08-CEPS – CIMUserGroupPrague1

ENTSO-E: European Market Model

Maurizio Monti, RTE, introduced the Agency for the Cooperation of Energy Regulators (ACER) which is an EU body with guidance and oversight responsibilities for the EU electric and gas systems and markets. The Internal Energy Market (IEM) is targeted for implementation in 2015 and will provide regulated 3rd party access, a grid access tariff and inter-TSO compensation. ENTSO-E is implementing the market and is leveraging and advancing the existing 62325 standard with work in 3 main areas: MarketCommon, MarketManagement and MarketOperations. An IOP test is scheduled for mid-2012.

Presentation:
Day 2 > 10-20110512_ENTSO-E_IEC62325_Part_351_EDI

Parts of CIM Standard 62325 – CIM for Markets

301: CIM UML Model Extensions for Markets

351: European Market Model Exchange Profile

352: North American Market Model Exchange Profile

450: Profile and context modeling rules

451-1: Acknowledgement for European Market

Harmonization
CIM and 61850

Laurent Guise, leader of WG10 effort on UML for 61850, reported that the UML for 61850 initiative is producing a UML model of the IEC 61850 standard. Its major objectives are: a creation of a single location for all 61850 modeling and associated documentation, 100% consistent publication outputs and a strengthened potential for harmonization with CIM. Currently, the significant effort of transferring the 61850-7-4 data

model to UML is nearly complete and there is consensus that the process improved the quality of the model.

Presentation: Day 1 > 08-A 61850 UML TF_Cim User's group 2011_05_10 V1

CIM and COSEM

Thomas Schaub, Landis & Gyr, convener of IEC TC13 WG14, discussed harmonizing the Companion Specification for Energy Metering (COSEM) and the CIM. COSEM is the EU smart meter communications standard currently deployed in more than 5 million smart meters in the IEC markets and planned for at least 70 million additional rollouts. Harmonizing Smart Metering (TC13) with Smart Grid (TC57) means marrying COSEM and CIM. A report exploring the use of 61968 Part 9 messages for Device Language Message Specification (DLMS)/COSEM was published in September, 2010. There are several possible approaches: mapping of COSEM to the CIM at headend system, at the CIM end, or in the middle at the (Home Energy System) HES interface. Is best to do it in the middle, but business use cases are needed.

Presentation: Day 1 > 09-110510 V1.0 print Harmonisation between CIM and DLMS

CIM and HAN

Scott Neumann, UISOL and Margaret Goodrich, SISCO, presented the current CIM and HAN harmonization approach, which is to create 61968 Premise Area Network (PAN) models that support generic communication requirements between enterprise applications implementing dynamic pricing/demand response programs and premise devices that could participate in those programs. The architecture considers the possible presence of a proxy PAN device and/or of a proprietary communications path between enterprise application and an actual PAN device. Direct adoption of / harmonization with models from other groups is of interest, but for a variety of reasons has been problematic. A series of 61968 EndDeviceEvent and EndDeviceControl messages have been defined and will be interoperability tested in September, 2011.

Presentation: Day 1 > 10-CIM in HAN

Current Initiatives
Role of CIM in Smart Grid

Jay Britton, Alstom, presented current issues and activities related to CIM and Smart Grid architecture. A semantic model is a structured description of the meaning of a set of information. A canonical data model (CDM) is a semantic model which is normalized and specific to one set of data. The CIM is a CDM which manifests itself both as a standard an

as an enterprise-specific integration aid. Profiles are derived from CDMs and are used to define exchange payload instances. Harmonized CDMs are characterized by the ability to do bi-directional lossless transfers between them. Versioning and model drift challenges will become issues utilities need to deal with as deployments mature. Coordination of cross-standard architecture and profile vision is being addressed by both the TC57 profile task force and Smart Grid Architecture Committee (SGAC) Semantic Framework.

Presentation: Day 2 > 01-Britton Semantic Framework Presentation v3

CIM for Weather

Pat Brown, EPRI, and Alan McMorran, Open Grid Systems, overviewed a Southern California Edison (SCE)-sponsored project to extend the CIM to cover weather information. The project is a collaborative with EPRI and Open Grid Systems. SCE is addressing use cases; Open Grid Systems is designing the model design, EPRI is providing project management. Business use cases from throughout SCE and from other contributors are being documented to drive solution requirements. Preliminary data modeling requirements have been identified related to weather categories (measured, condition, advisory), environments (atmospheric, geospheric, hydrospheric, space) and time periods (historical, current, forecast). Existing CIM modeling concepts/classes will be used and existing weather data standards are being assessed (TMY3, WXXM, and work by ABB) with the intent of harmonizing them with the CIM. Input from the CIM community is being sought and results will be presented to the appropriate TC57 Working Group.

Presentations: Day 2 > CIMug 2011-05-12, 02-CIM for Weather Presentation_20110512, 02-cim-weather-arm

Interoperability and Smart Grid Testing Certification Committee

Margaret Goodrich, SISCO, reported on the recent work of the Smart Grid Testing and Certification Committee (SGTCC), which is a standing committee of the Smart Grid Interoperability Panel (SGIP). SGTCC has developed a framework to enable industry testing and certification programs for Smart Grid interoperability. An Interoperability Process Reference Manual (IPRM) was issued in January, 2011 which introduced the role, requirements and responsibilities of standard-specific Interoperability Testing and Certification Authorities (ITCAs).

Presentation: Day 2 > 03-SGTCC Overview Deck – May 2011 – Connectivity Week

"Under the Hood" with CIM

How the CIM fits within Enterprise Architecture

Terry Saxton, Xtensible Solutions, gave a tutorial on Enterprise Information Modeling. For enterprise application integration with a utility, the need for common semantics is most effectively met by developing an overarching Enterprise Information Management (EIM) strategy and by leveraging standards. EIM implies the recognition that information is as important as process and infrastructure. EIM work is currently being done in the OpenSG EIM task force. ESBs provide the most common backbone for information exchange and 61968 message payload standards provide a starting point for designing utility deployments. Steps to applying an enterprise semantic model include establishing a vocabulary, developing a common model and generating an implementation.

Presentation: Day 2 > 06-Role of CIM in Enterprise Information Architecture

How the CIM fits within Enterprise Architecture

Scott Neumann, UISOL, presented a lessons-learned session based on the combined experiences of Margaret Goodrich, SISCO, Lucas Malesku, BC Hydro and Frank Wilhoit, AEP. Integration success involves people and process as much as technology. Documentation is key to providing ongoing guidance for modeling, design and development. Documentation should include: use cases, functional and non-functional requirements, System Interaction Specifications, interface designs, models (conceptual, logical and canonical) and mappings and integration patterns. Multiple tools exist for process support and among the most useful are Enterprise Architect (EA) and CIMTool. The need to extend the CIM for projects is to be expected and extensions are supported by several different modeling strategies. Extension design should be carefully thought out and based on an understanding of the CIM. There are multiple approaches for exchanging information: messages/events/queries over an ESB, exchanges via CIM XML files, transfer to a data warehouse using ETL and http requests. Object naming is a critical aspect of integration and CIM15 has introduced the Name class to help address name issues.

Presentation: Day 2 > 07-Enterprise Integration using the CIM-CIM UG-Final

CIM Model Manager Report

Lars-Ola Osterlund, ABB, presented the CIM Model Manager report from Kendall Demaree, Alstom, WG13 CIM Model Manager, who was not able to attend. The 619870 CIM15 is "frozen" except for minor corrections and includes the following major additions:

- Phase unbalanced models for WG14 and beyond
- New datatype primitives (#802 closed)
- Dynamics model from EPRI work
- Name – NameType model
- New transformer model, unbalanced, tanks
- Type (catalog) data support
- Cuts and Jumpers – via WG14
- AuxiliaryEquipment

All Working Groups are holding weekly conference calls and are benefitting from cross-Working Group participation. A profiles task force (reporting to WG19) is holding weekly web conferences as well. Model managers are exploring model assembly strategies and working on documentation improvement and issue resolution.

Presentation: Day 3 > 01-mm_report_prague_r1

CIM Messaging Profiles Task Force

Jay Britton, Alstom, stated that the Profiles Task Force started meeting in March, 2011 with the mission of increasing the understanding of the different approaches to profiles taken by the different Working Groups and to better coordinate and leverage consistent CIM usage. Seven phone conferences have been held to date, with discussions covering problems, requirements, existing profile practices, documentation round up, objectives and tensions and the creation of a WG19 New Work In Progress (NWIP). Work topics include: scope of profile, profile management, versioning, harmonization with external models, profile definitions and profile validation.

Presentation: Day 3 > 01-profiles-task-force-status-summary-2011-05-06

Use Cases for TC57

Eric Lambert, EdF, discussed the importance of use cases and the universal recognition of the value of use cases that exists throughout the Smart Grid and application integration worlds. An IEC SG has been created to make recommendations regarding IEC use cases which thus far include:

the need to involve appropriate TC experts in use case specifications, TC8 taking the position of coordinator of use cases and IEC keeping abreast of developments in the use case area. An international use case workshop with representatives from CEN, CENELEC, ETSI and IEC was held in March, 2011 and, as a result of the meeting, TC8 will undertake a variety of activities related to use case methodology, generic use cases and establishment of a use case repository.

Presentation: Day 3 > 02-UseCasesForTC57_EricLambert

Results of the CIM for Distribution Interoperability Testing and 61850 Interoperability Testing

Margaret Goodrich, SISCO, reported on 2 interoperability tests hosted by EdF in March, 2011 in Paris. One test covered four Parts of 61968, the other centered on 61850 interoperability. 10 vendors participated in 61968 Part 3 testing, 8 vendors in Part 6 testing and 10 vendors in combined Part 4 and 13 testing. 61968 Part 3 testing was done remotely, with vendors and witnesses located on several different continents. Multiple messages/exchanges were tested for each part and testing was successful and productive. Interoperability test details and results will be posted on the CIMug website under Library > Interop Documents as soon as the final report is prepared.

The 61850 interoperability was also productive, with testing covering:

- Network Infrastructure, in which 5 vendors participated
- Substation Configuration Language, in which all non-switch vendors participated
- Sampled Values, in which 4 vendors participated, some in multiple roles
- GOOSE (Generic Object Oriented Substation Event), in which 12 vendors participated
- Client/Server, in which 18 vendors participated
- Time Synchronization - SNTP (added at site), in which 9 vendors participated

The test was the first true 61850 interoperability test (previous testing has focused on compliance) and was a major benefit for the 61850 suite of standards: it allowed vendor s to improve their products, confirmed the cross-vendor interoperability of 61850 and identified areas where correc-

tion/clarification of the standard is needed (many of which are already being addressed by Edition 2).

Presentations: Day 3 > 03a-Results Report on UCA IOP-April 2011, 03b-Results Report on UCA IOP- 61850-April 2011

CIM - OPC UA

Sebastian Rohjans, OFFIS, summarized the relationship between CIM and UPC UA based on his work with Jean-Francois Cabadi, Alstom Power, Klaus Piech, and Mathias Uslar, OFFIS. Classic OLE for Process Control (OPC) is widely used in production and Manufacturing Execution System (MES) applications, Human Machine Interface (HMI) and SCADA systems and in process control systems, with more than 20,000 products on the market from several thousand vendors. OPC Unified Architecture is a new, platform-independent version of OPC that supports communication beyond the firewall, high-performance communication via Web Services, a unified data model, data loss prevention, better security and support of method calls. OPC UA is an appropriate technology in which to implement the CIM.

Presentations: Day 3 > 04-opc_ua_cim_cimug

Ask the Expert Panel Session

There was discussion, disagreement (horrors!) and discourse in answer to a variety of questions covering:

- EMS-to-EMS full model exchange (use breaker-node model plus SCADA interface)
- How to submit extensions to the CIM (to either the CIMug Help Desk or via your country's representative – be sure to include use cases)
- Where in an organization the CIM "belongs" (with the domain experts, in IT, it depends on the maturity of the organization with respect to enterprise application integration, with domain experts, in IT….)
- Interoperability testing (test data needs to be better than it is, but creating it is a great deal of work and it can't precede profile definition)
- Working examples of competence centers (CAISO, Sempra – people in

the competency center need to manage the tension between getting projects done and the desire for overall organizational purity, also they need to be able to enter the business world and talk its language)

- Reliance on vendors (utilities need to develop in-house integration competency)

Sponsoring Vendors

IBM

Irv Badr, IBM, overviewed IBM's heavy involvement in key electric utility standards efforts. IBM has Energy & Utility Solutions Centers in the USA, France and China and provides multiple solution products (including Rational, Tivoli and WebSphere) for business process modeling and application integration.

Presentation:
Day 1 > 12-IBM_IrvB_EandUIndustryOverview-CIMug_Spring_2011

CyberSoft

Sakari Lampola, Jani Malinen, and Jussi Rikala of CyberSoft, introduced CyberSoft, a company in the HeadPower family (a Finnish service and software provider). CyberSoft's Network Manager product is CIM-based and implements technologies and algorithms for: network management, relay management, fault current management/calculation, transformer and line loading calculation, outage management, disturbance management, maintenance management and substation/transmission system asset management.

Presentation:
Day 1 > 13-NetworkManager_CIMUsersPrague_11052011

Siemens PTI

Anna Geevarghese, Siemens, stated that Siemens PTI offers electric utility network consulting, system planning/analysis software solutions and standard and customized training. One of Siemens PTI's software products is PSS®ODMS, a single- or multi-user solution with a variety of powerful features for electrical transmission network modeling and analysis based on the CIM standard.

Presentation: Day 1 > 14-Siemens PTI_2011 CIMug Prague_v5

SISCO

Ralph Mackiewicz, SISCO, mentioned that SISCO (Systems Integration Specialists Company, Inc.) is a strong supporter of UCAI and CIMug and actively participates in multiple IEC TC57 Working Groups. SISCO provides CIM-based integration services (training, consulting, testing, support) and standards-based products (ICCP-TASE.2, OPC interfaces for 61850, UIB/interfaces for CIM, UAP for wide-area protection and centralized remedial action schemes using IEC 61850 GOOSE and PI and UAP for real-time synchrophasor processing with PI).

Presentation: Day 1 > 15-CIMug Intro to SISCO

Sparx Systems

Ben Constable, Sparx Systems, presented on Sparx Systems, the developer of Enterprise Architect, a widely deployed enterprise integration development environment and the tool in which the CIM model is stored. Enterprise Architect supports global and cross-team accessibility. Sparx is an active contributor to open standards.

Presentation: Day 1 > 16-Sparx-Systems-Enterprise-Architect-Intro

Xtensible Solutions

Terry Saxton, Xtensible Solutions, discussed Xtensible Solutions, an ESCO Technologies company offering solutions (MD3i Framework) and services in the enterprise application integration arena. Xtensible is heavily involved in IEC TC57 standards and OpenSG activities and is a pioneer in Enterprise Information Management.

Presentation: Day 1 > 18-Xtensible Solutions Overview

Looking Forward

CIMug 2011 Goals

Dean Hengst, Exelon, Utility Co-Chair of CIMug identified five goals for 2011:

- Marketing and Communications – improve marketing of CIMug, better internal/external communications, set up focus groups by continent
- Making use of CIM related Standards – UML views by subject area, improved clarity on releases (with 3 Working Groups contributing to single model), organize CIM draft standards, need use cases

- Education – develop methodology to educate key stakeholders, provide education for CIMug members and industry at large
- Member Services Website – improve CIMug website by improving organization, creating an education sub-site, creating a page of links to other sites, evaluating the search function
- Working Groups Definition – MTEI, Naming and Model Exchange, etc.

Presentation: Day 2 > 11-CIMug2011 Goals

CIM University
Introduction to the CIM and Related Standards
01-CIM Standards Overview CIM U - Terry Saxton, Xtensible Solutions

An introduction to what the CIM is, its history; its use as a conceptual (or semantic or canonical) model between applications and across utility domains; the concept of adapters for translating from/to an application model and the common model; CIM's central role in an enterprise architecture based on an integration bus for decoupled exchange of information between applications; how the CIM uses UML; details of the CIM model, profiles and 61968 messages; the use of XML Schema and Resource Description Framework (RDF); review of CIM standards (61970, 61968, 62325) and the IEC TC57 Working Groups (WG13, WG14, WG16) that support them; current state of CIM development; CIM's relationship to other standards; the use of EA and the specific use of the CIM for utility integration projects.

CIM for Enterprise Integration (IEC 61968 Series)
02-Messaging for Distribution-Overview and Philosophy – Margaret Goodrich, SISCO

Using CIM for Enterprise Integration (the 61968 series of standards), including an overview of message organization (envelopes, payload, verbs, nouns) and message examples.

03-61968-9 Meter Reading and Control – Margaret Goodrich, SISCO

Review of 61968 Part 9 - Meter Reading and Control (scope, purpose, information and reference models, meter reading and control messages) with reference to Part 9 Normative Enumerations Excerpt.

04-61968-100 Implementation Profile Overview – Margaret Goodrich, SISCO

Overview of the scope and purpose of 61968 Part 100 (to define an implementation profile for both Java Message Service (JMS) and Web Services to allow implementations to be interoperable), how use cases and message exchange patterns help clarify requirements, Enterprise Service Bus (ESB) considerations and security.

CIM for Deregulated Market Communications
05-62325 Part 301 CIM Market Model – Margaret Goodrich, SISCO

Overview of the CIM Market Model (62325) maintained by WG16, covering scope/purpose, 2 styles of markets: European and North American, 62325-16 (the Logical Model) and European and North American model profiles.

CIM Steady State Solution Interfaces and Profiles
Tutorial Britton CIM Model Exchange – Jay Britton, Alstom

Review of family of CIM standards based on CIM XML (61970-552):

- Static Network Model Exchange (61970-452)
- Dynamic Model Exchange
- Unbalanced Models
- Short Circuit
- Solved State Exchange (61970-456)
- Schematic Layout Exchange (61970-453)

Tutorial Britton CIM Profiles and CIM Projects – Jay Britton, Alstom

Review of profiles vs. the canonical model, overview of CIM standards methodology, profile usage, application to CIM contextual model transformations, evolution/maturation of CIM usage, using CIM as an enterprise model, other uses of CIM and version management in CIM architectures

CIM Modeling Tools and Their Position in the TC57 Framework
Effantin-MTEI_Available List of Tools and their position in TC57 modelling stack – Cyril Effantin, EdF

Review of the CIM standard and how it manifests itself as an aid to enterprise integration, overview of CIM-related tools and their functions (expressed in terms of where they fall in the TC57 Reference Architecture and United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) organization: information model, contextual model, message syntax), review of CIM tools for power system models and message payload generation. Reference to CIM tool compilation 11 May 2011.

Designing System Integrations with Enterprise Architect

Modeling-for-Integration-and-BPA – Ben Constable, Sparx Systems

Overview covering:

- value of modeling in systems integration   and business process analysis
- understanding data for information exchange and understanding legacy systems
- business process modeling

CIM User Group Web Site Tutorial

www.cimug.org site tour by Terry Saxton, Xtensible Solutions

For more information about the CIMug, contact:

Terry Saxton, Xtensible Solutions, Vendor Co-Chair of CIMug, tsaxton@xtensible.net

Dean Hengst, Exelon, Utility Co-Chair of CIMug, dean.hengst@exeloncorp.com