Standards: Help or Hindrance in Smart Grid Deployment

The co-op perspective

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Co-op Facts and Figures

• 864 distribution and 66 G&T cooperatives serve:
  • over 40 million people in 47 states.
  • 17.5 million businesses, homes, schools, churches, farms, irrigation systems, and other establishments in 2,500 of 3,141 counties in the U.S.
  • 12 percent of the nation's population.
To perform their mission, electric cooperatives:

• own assets worth $100 billion,
• own and maintain 2.5 million miles, or 42%, of the nation’s electric distribution lines, covering three quarters of the nation's landmass,
• deliver 10 percent of the total kilowatt-hours sold in the U.S. each year,
• generate nearly 5 percent of the total electricity produced in the U.S. each year,
• employ 67,000 people in the United States.
The “average” distribution Cooperative:

• 12,500 customers (member/owners) –
  – 88% Residential,
  – 11% Commercial,
  – 1% Industrial

• 7 customers per mile of distribution line

• 430 MWh retail sales

• 70 Employees
Standards

• Cooperatives depend on Federal RUS Standards and Procedures
  – Financial/Accounting Procedures
  – Construction/Material Specifications
  – Planning Procedures

• Required to secure RUS Loans

• Small companies do not have resources (staff) to create standards
MultiSpeak® Objectives

Industry-wide open initiative sponsored by the National Rural Electric Cooperative Association (NRECA) to facilitate development of software interfaces needed by electric distribution utilities

- Developed uniform interface definitions for data exchange among commonly used software
- Developed consensus among vendors about details of the interfaces, including data dictionary, data objects, and messaging framework
What is MultiSpeak?

- Specification for data exchange interfaces
- Treats software applications as “black boxes”
- Defines what data need to be exchanged between common software
- Defines the structure of those data objects
- Specifies message structures and messaging architectures
- Supports real time (Web Services) and/or file-based (Sockets and SOAP) data exchanges
Advantages to MultiSpeak

- Enables utilities and vendors to develop tight integration quickly and cost-effectively
- It supports modern software development techniques and standards
- Supports SOA and ESB approaches favored by larger utilities, in addition to tactical peer-to-peer approaches
- Fosters development of integrated software without the need of custom interfaces
- Enables utilities to choose “best of breed” software without fears of lack of integration
- Reduces cost of interoperable software
- Reduces deployment time and risk in implementation of new automation applications
Brief History

- 1/2000 – Cooperative Research Network (CRN) Project Start
- 12/2000 - Version 1.1 issued
- 12/2003 - Version 2.2 issued (adding real time, AMR, SCADA, etc.)
- 1/2004 - Shifted to NRECA Software Integration Initiative supported with Membership dues with additional NRECA support
- 12/2005 – Version 3.0 issued (adding web services)
- 3/2008 – Access to non-members frozen with Version 3, build j
- 2/2009 – Version 4.0 issued (bus architecture)
IEC (CIM) Harmonization Status

A collaboration has been established that will create and propose two sets of IEC standards:

- IEC 61968-14-1: Mapping between MultiSpeak 4.0 and IEC 61968, parts 3 through 10
- IEC 61968-14-2: A CIM profile for MultiSpeak 4.0, one profile for IEC 61968 parts 3 through 10
Completed Interpretability Tests
(as of 9/09)

- Survalent SCADA v. 1.08.0626
- Elster EnergyAxis MAS v. 6.0.2 – Milsoft DisSPatch & Web Server v. 7.2
- Aclara (TWACS) AMR (OD) with C3-ilex SCADA (acting as OA).
- Hunt Command Center v.2.2.2 – Milsoft WindMil & Web Server v. 7.1
- Advanced Control Systems PRISM Web Service Gateway v. 1.0
- Cannon Yukon v. 3.1.17 – Milsoft DisSPatch & Web Server v. 7.1
- DCSI Optimum v. 0.1 – Milsoft WindMil, DisSPatch & Web Server v. 7.1
- Hunt Command Center v. 2.2.2 – NISC iVUE v. 1.8
- Survalent Windows SCADA v. 3.0 – Milsoft WindMil, DisSPatch & Web Server v. 7.1
- QEI TDMS Plus SCADA System v. 7.0.0 - Milsoft WindMil, DisSPatch & Web Server v. 7.2
- Exceleron PAMS v. 1.0 – Hunt Command Center v. 3.0
- Exceleron PAMS v. 1.0 – Cannon Yukon v. 3.2
- Exceleron PAMS v. 1.0 – DCSI TWACS OPTIMUM V. 1.5
- Cannon Yukon v. 3.2 – NISC OMS v. 1.7 & iVUE v. 1.8
- DCSI TWACS OPTIMUM v. 1.5 – NISC OMS v. 1.7 & iVUE v. 1.8
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<th>MultiSpeak Vendor Members</th>
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- Aclara (DCSI TWACS)
- Advanced Control Systems
- C3-Ilex
- Carina Technology, Inc.
- Central Service Association
- Clevest Solutions
- Cooper Power (Cannon Technologies)
- Cooperative Response Center
- Cornice Engineering
- Daffron
- Elster Integrated Solutions
- EnerNex
- Enspiria Solutions
- EPRI
- ESRI
- Exceleron Software
- GeoNav Group
- Landis + Gyr
- Int3s, Inc.
- Meltran, Inc.
- Milsoft
- N-Dimension Solutions
- Nexant, Inc.
- NISC
- NRTC
- Olameter, Inc.
- Open Secure Energy Control Systems
- Open Systems International
- Oracle Utilities
- Ovace A Mamnoon
- Partner Software
- Powel
- Power Delivery Associates
- Power System Engineering (PSE)
- Professional Computer Systems
- Progress Software
- QEI
- RMA Engineering
- SageQuest
- SEDC
- Siemens
- SpatialNet
- Survalent Technologies
- Tantalus
- Telvent/Miner & Miner
- Trimble/UAI
- UISOL
- Wireless Matrix
- Xtensible Solutions
MultiSpeak Utility Members
(9/2009)

- Barton County EC, MO
- Central Alabama Elec. Co-op
- Central REC, OK
- Co-Mo EC, MO
- Consumers Energy Company, MI
- Corn Belt Energy, IL
- Dakota EA, MN
- Dixie EMC, LA
- Detroit Edison Company, MI
- Duck River EMC
- East Central OK EC
- EnergyUnited, NC
- Hart EMC, GA

- KAMO Power, OK
- New Hampshire Electric Co-op
- Northern Neck EC, VA
- Oklahoma Electric Co-op
- Owen Elec. Co-op, KY
- Pioneer REC, OH
- Platte-Clay Elec. Co-op, MO
- Poudre Valley REA, CO
- Santee Elec. Co-op, SC
- Southwest EC, MO
- STAR Energy Services, MN
- Vermont Electric Co-op
- White River Valley EC, MO
- WIN Energy REMC, IN
More Information

www.multispeak.org