MultiSpeak® Specification – Key to Co-op Smart Grid Interoperability

CRN Smart Grid Summit

June 29, 2010
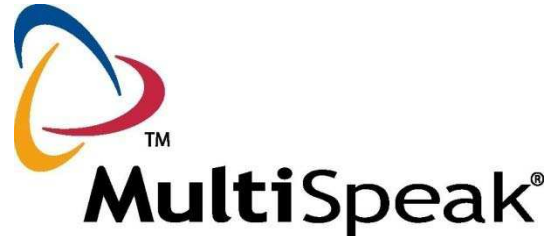
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Outline

- Introduction to MultiSpeak®
- Status of MultiSpeak specification
- MultiSpeak and the NIST standard roadmap
- How MultiSpeak fits into the smart grid
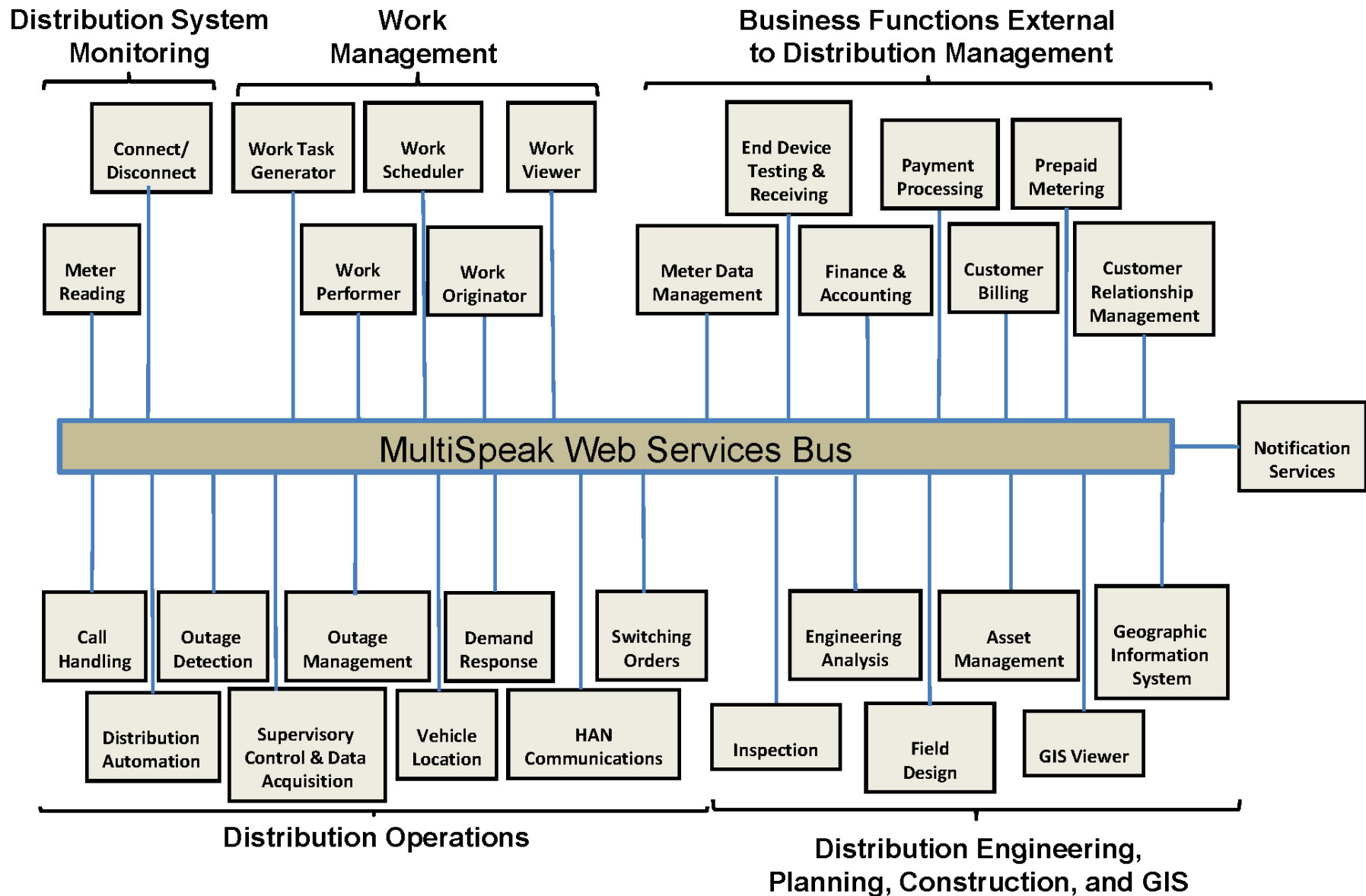- Development plans

Introduction to MultiSpeak®

- Initiative to develop and document software data exchange interfaces and service-enabled application integration.
- Developed by NRECA in collaboration with key industry vendors
- Currently covers applications of interest to distribution utilities and to the distribution portion of vertically integrated utilities, moving towards support for transmission.
- Standard is mature, scope is continuing to grow
- In use at over 500 utilities in at least 12 countries
- More information and specification available at www.MultiSpeak.org

MultiSpeak Vendor Members (6/2010)

- Aclara (DCSI TWACS)
- Advanced Control Systems
- AutoDesk
- C3-Ilex
- Carina Technology, Inc.
- Capricorn Systems
- Central Service Association
- CIM-ple Solutions
- Clevest Solutions
- Cooper Power (Cannon Technologies)
- Cooperative Response Center
- Cornice Engineering
- Daffron
- Elster Integrated Solutions
- EnerNex
- Enspiria Solutions
- EPRI
- ESRI
- Exceleron Software
- GeoNav Group
- GridPoint
- Int3s
- KRB Applied Sciences
- Landis + Gyr
- Meltran, Inc.
- Milsoft
- Mueller Systems, Inc.
- N-Dimension Solutions
- Nexant, Inc.
- NISC

- NRTC
- Olameter, Inc.
- Open Secure Energy Control Systems
- Open Systems International
- Oracle Utilities
- Ovace A Mamnoon
- Papros, Inc.
- Partner Software
- Powel
- Power Delivery Associates
- Power System Engineering (PSE)
- Professional Computer Systems
- Progress Software
- QEI
- RMA Engineering
- SageQuest
- SEDC
- Sensus
- Siemens
- SmartGridCIS
- SpatialNet
- STAR Energy Services
- Survalent Technologies
- Tantalus
- Telvent/Miner & Miner
- Telogis
- Trimble/UAI
- UISOL
- Wireless Matrix
- Xtensible Solutions

Distribution System Monitoring

Work Management

Business Functions External to Distribution Management

Connect/ Disconnect	Work Task Generator	Work Scheduler	Work Viewer		End Device Testing & Receiving	Payment Processing	Prepaid Metering

Meter Reading		Work Performer	Work Originator		Meter Data Management	Finance & Accounting	Customer Billing	Customer Relationship Management

MultiSpeak Web Services Bus

Notification Services

Call Handling	Outage Detection	Outage Management	Demand Response	Switching Orders		Engineering Analysis	Asset Management	Geographic Information System

	Distribution Automation	Supervisory Control & Data Acquisition	Vehicle Location	HAN Communications		Inspection	Field Design	GIS Viewer

Distribution Operations

Distribution Engineering, Planning, Construction, and GIS

Completed Interoperability Tests
(as of 6/2010)

- 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).
- Aclara (TWACS) AMR (MR) with NISC iVue (CB).
- Aclara (TWACS) AMR (OD) with NISC iVue (OA).
- Hunt Command Center v.2.2.2 (MR) – Milsoft Windmil & Web Server v. 7.1 (EA)
- Hunt Command Center v.2.2.2 (OD) – Milsoft Windmil & Web Server v. 7.1 (OA)
- Advanced Control Systems PRISM Web Service Gateway v. 1.0
- Cannon Yukon v. 3.1.17 (MR) – Milsoft DisSPatch & Web Server v. 7.1 (EA)
- Cannon Yukon v. 3.1.17 (OD) – Milsoft DisSPatch & Web Server v. 7.1 (OA)
- DCSI Optimum v. 0.1 – Milsoft WindMil, DisSPatch & Web Server v. 7.1
- Hunt Command Center v. 2.2.2 (MR) – NISC iVUE v. 1.8 (CB)
- Survalent Windows SCADA v. 3.0 (SCADA) – Milsoft WindMil, DisSPatch & Web Server v. 7.1 (OA)
- Survalent Windows SCADA v. 3.0 – Milsoft WindMil, DisSPatch & Web Server v. 7.1 (EA)
- QEI TDMS Plus SCADA System v. 7.0.0 (SCADA) - Milsoft WindMil, DisSPatch & Web Server v. 7.2 (OA)
- QEI TDMS Plus SCADA System v. 7.0.0 (SCADA)- Milsoft WindMil, DisSPatch & Web Server v. 7.2 (EA)
- Aclara (TWACS) AMR (OD) with Milsoft WindMil, DisSPatch & Web Server v. 7.2 (OA)
- Aclara (TWACS) AMR (MR) with Milsoft WindMil, DisSPatch & Web Server v. 7.2 (EA)
- Aclara (TWACS) AMR (MR) with Milsoft WindMil (CB)
- Exceleron PAMS v. 1.0 (CB) – Hunt Command Center v. 3.0 (CD)
- Exceleron PAMS v. 1.0 (CB) – Hunt Command Center v. 3.0 (MR)
- Exceleron PAMS v. 1.0 (CB) – Cannon Yukon v. 3.2 (CD)
- Exceleron PAMS v. 1.0 (CB) – Cannon Yukon v. 3.2 (MR)
- Exceleron PAMS v. 1.0 (CB) – DCSI TWACS OPTIMUM V. 1.5 (CD)
- Exceleron PAMS v. 1.0 (CB) – DCSI TWACS OPTIMUM V. 1.5 (MR)
- Cannon Yukon v. 3.2 (MR)– NISC iVUE v. 1.8 (CB)
- Cannon Yukon v. 3.2 (OD) – NISC OMS v. 1.7 (OA)
- DCSI TWACS OPTIMUM v. 1.5 – NISC OMS v. 1.7 & iVUE v. 1.8
- Clevest Mobile Field Force – Milsoft DisSPatch OMS, V3.0
- Clevest Mobile Field Force – Milsoft DisSPatch OMS, V4.0
- Tantalus TUNet AMI – Milsoft DisSPatch OMS – V3.0
- Tantalus TUNet AMI – NISC iVUE OMS – V3.0
- SageQuest Mobile Control (AVL) – Milsoft Milsoft Web Server (OMS) – V3.0
- ArcGIS (GIS) Data Model Compatibility Test – V3.0
- OSI monarch (SCADA) – Milsoft DisSPatch (OMS) – V3
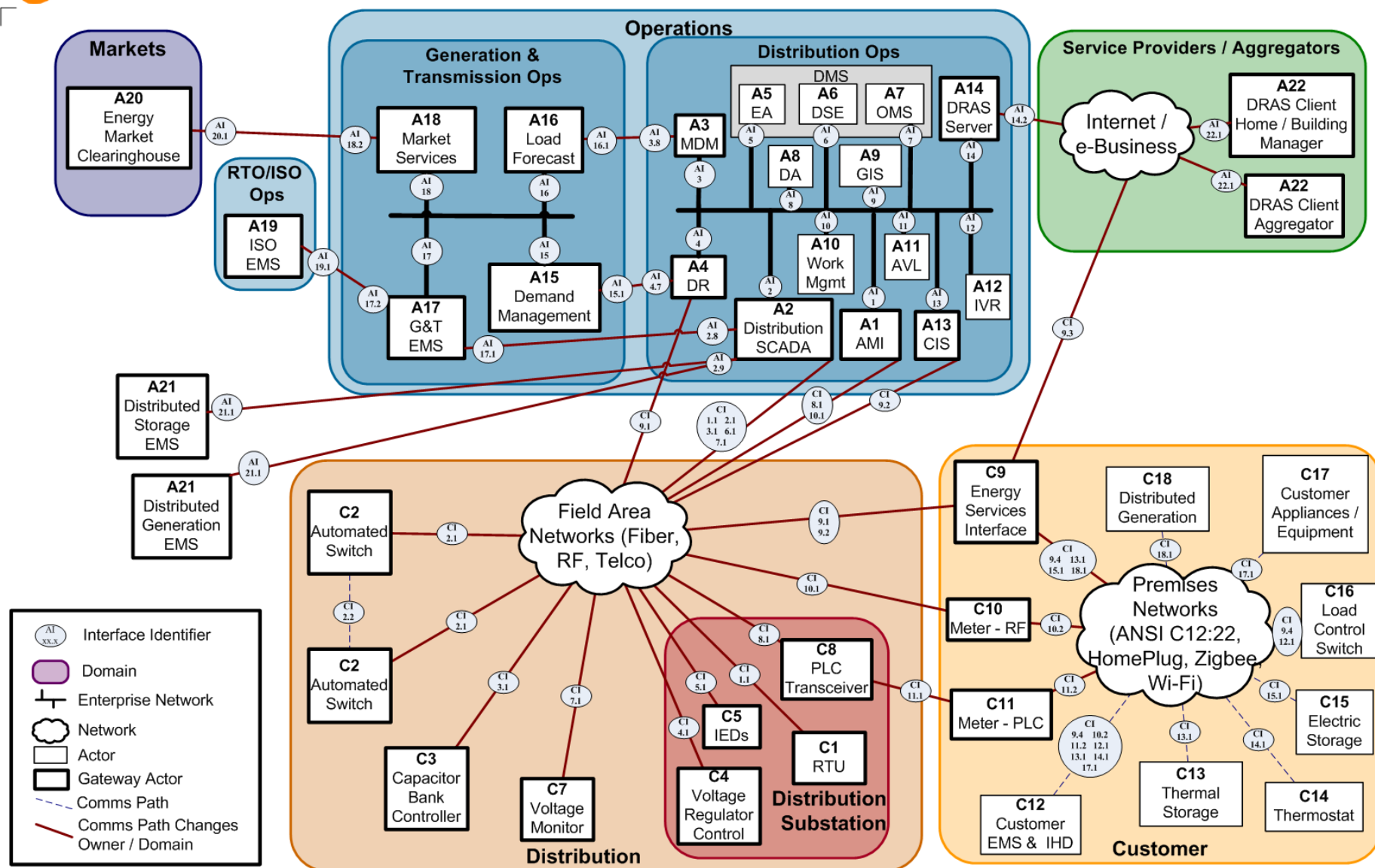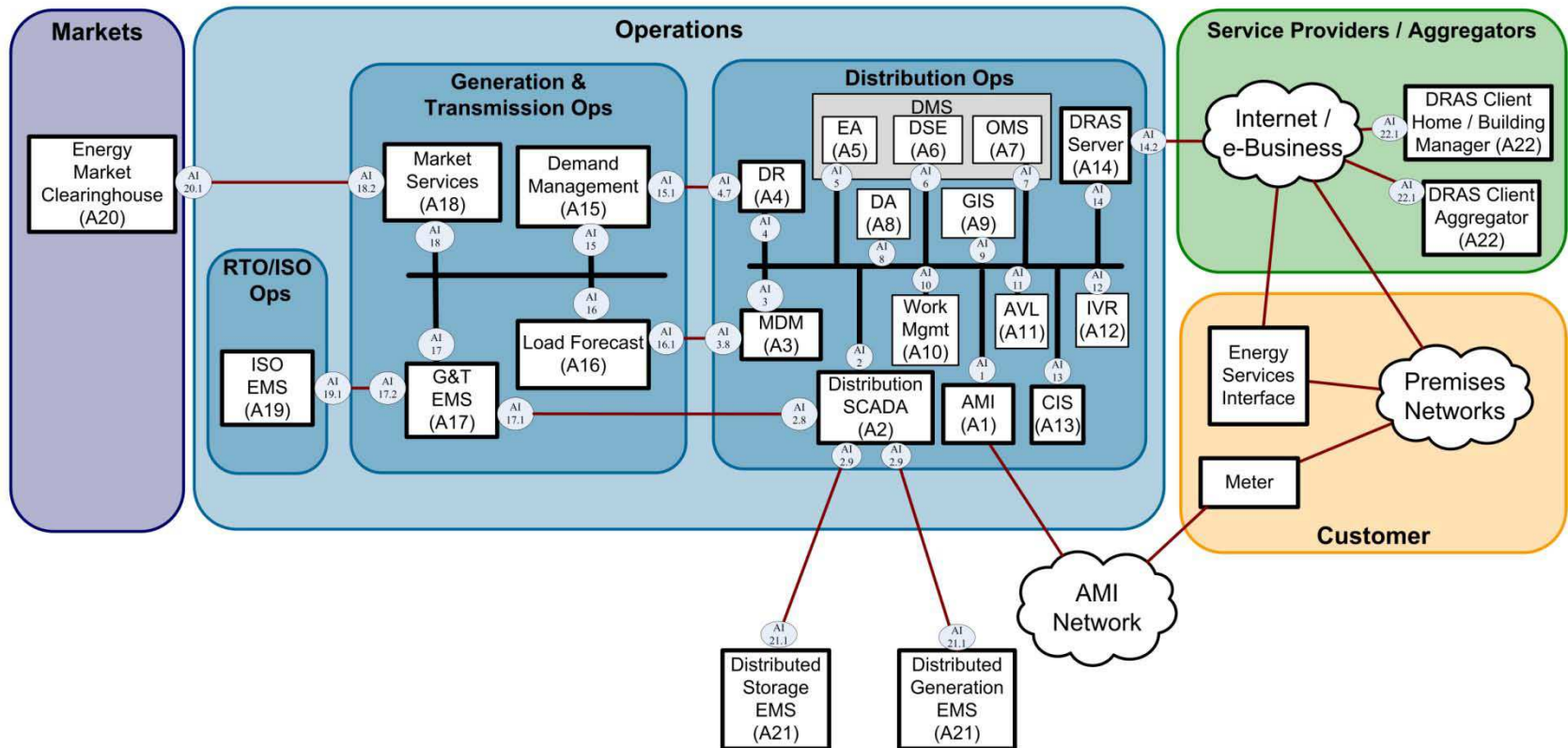- OSI monarch (SCADA) – Milsoft WindMil (EA) – V3

34 Version 3.0 Interoperability Interfaces Tested; 2 Version 4.0 Tested

NIST Smart Grid Conceptual Model
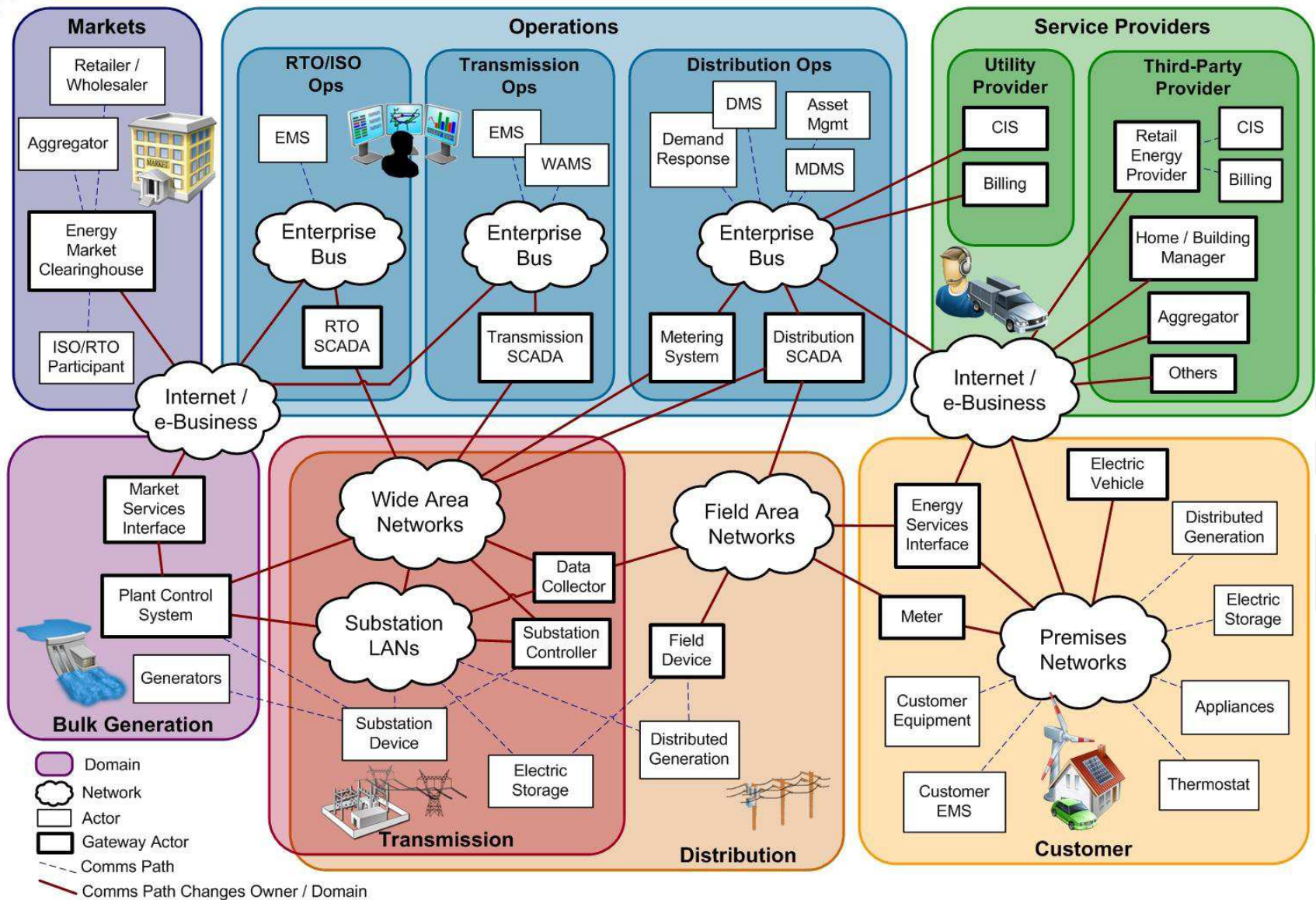
CRN Smart Grid Demo Architecture

Enterprise Interoperability

Status of Required Interfaces

Existing Interface

Interface Development Required

Development Strengths and Challenges

- Thirty of the required 45 interfaces exist
- This body of existing work is a core strength of the CRN Demo project
- We need to build ½ as much in the next 2 years as we have completed in the last 10 years
- Much of the outstanding work requires the input of other NIST PAP and SDO efforts

Approach to Handle Development Challenges

- Form new Technical Requirements teams with specialized background in areas of required development (market, HAN, 3rd party access)

- Work with affected vendors and demo participants to accelerate builds

- Rapid prototyping leading to annual public releases

- Roll in other standards as they develop public releases

- Isolate MultiSpeak releases on own web services endpoint to maximize interoperability

Interface Development Required
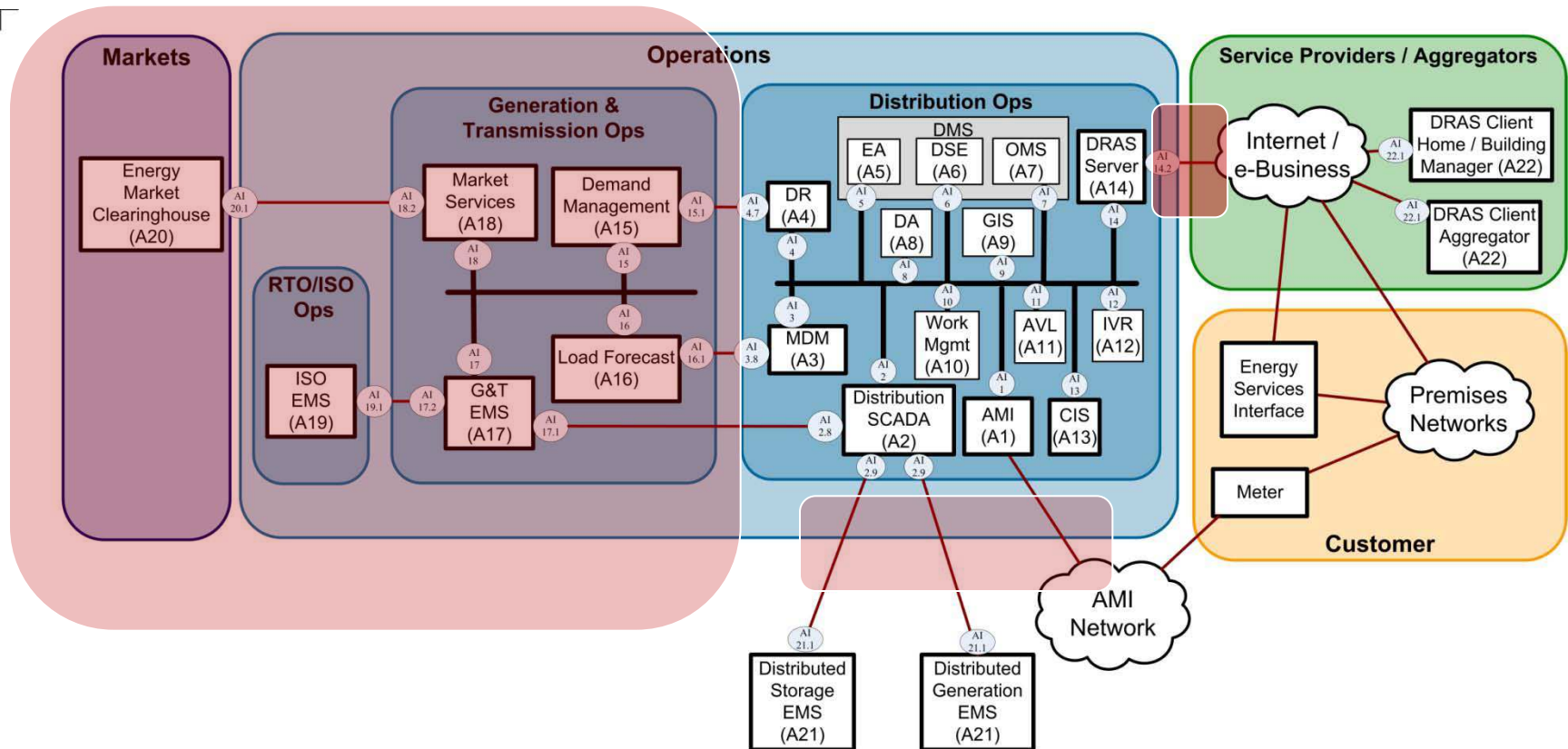
Benefits of Proposed Extensions

- **G&Ts will be able to:**
  - Get improved information on distribution co-op loads (especially current/historical load, system status and improved load forecasting using potential DER and DR)
  - Be able to quantify potential "dispatchable" DR capacity and verify load rejection in real time

- **Distribution co-ops will be able to:**
  - Enable additional rate options for consumer members (e.g., peak load pricing and finely tuned interruptible rates)
  - Present consumer members energy use information via web portals & in-home displays
  - More tightly interface with industrial, large commercial, and large building customers
  - More tightly manage demand using voltage/VAr control, cranking remote generation, and optimizing voltage profiles
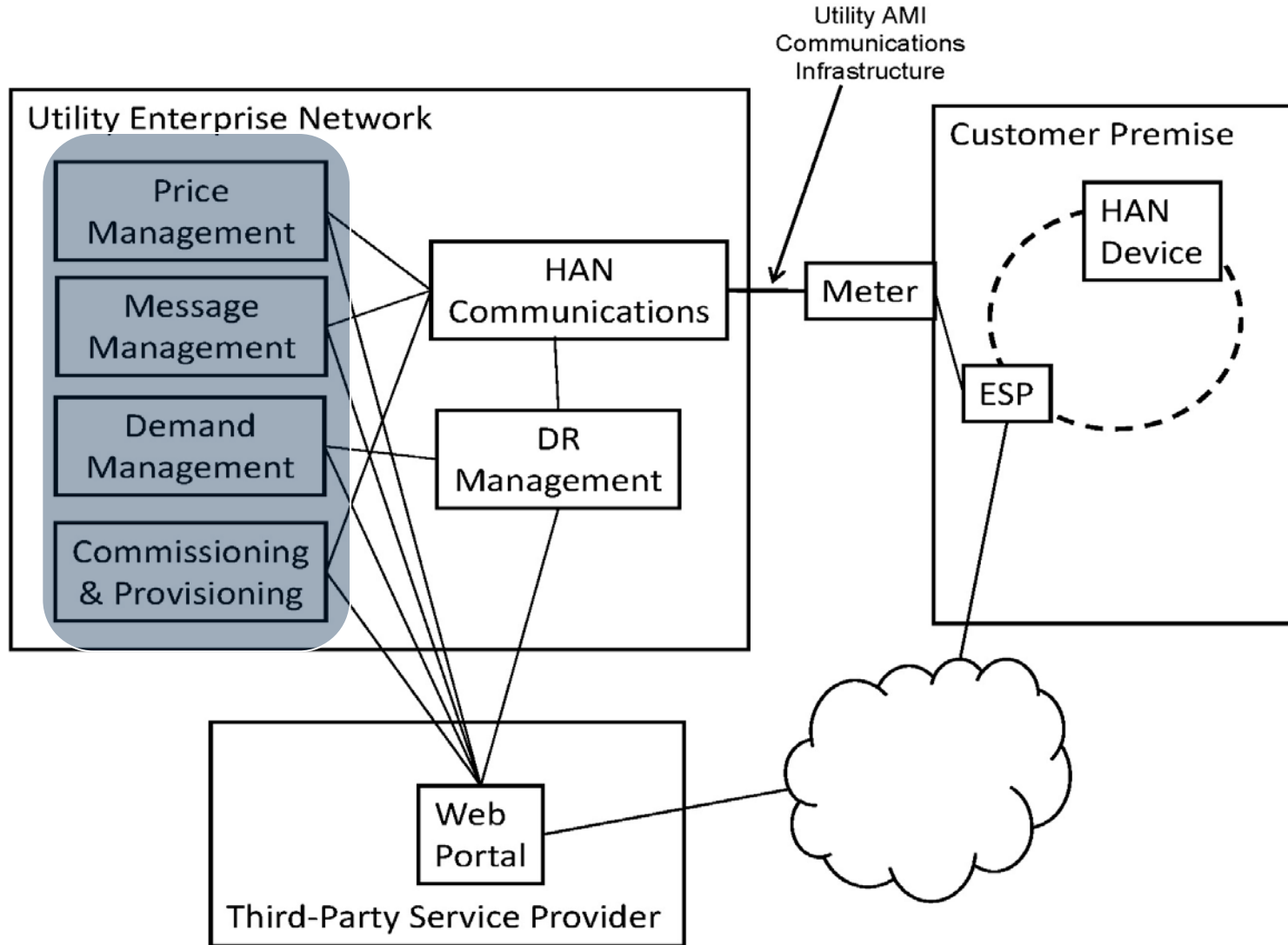
Proposed HAN Functions
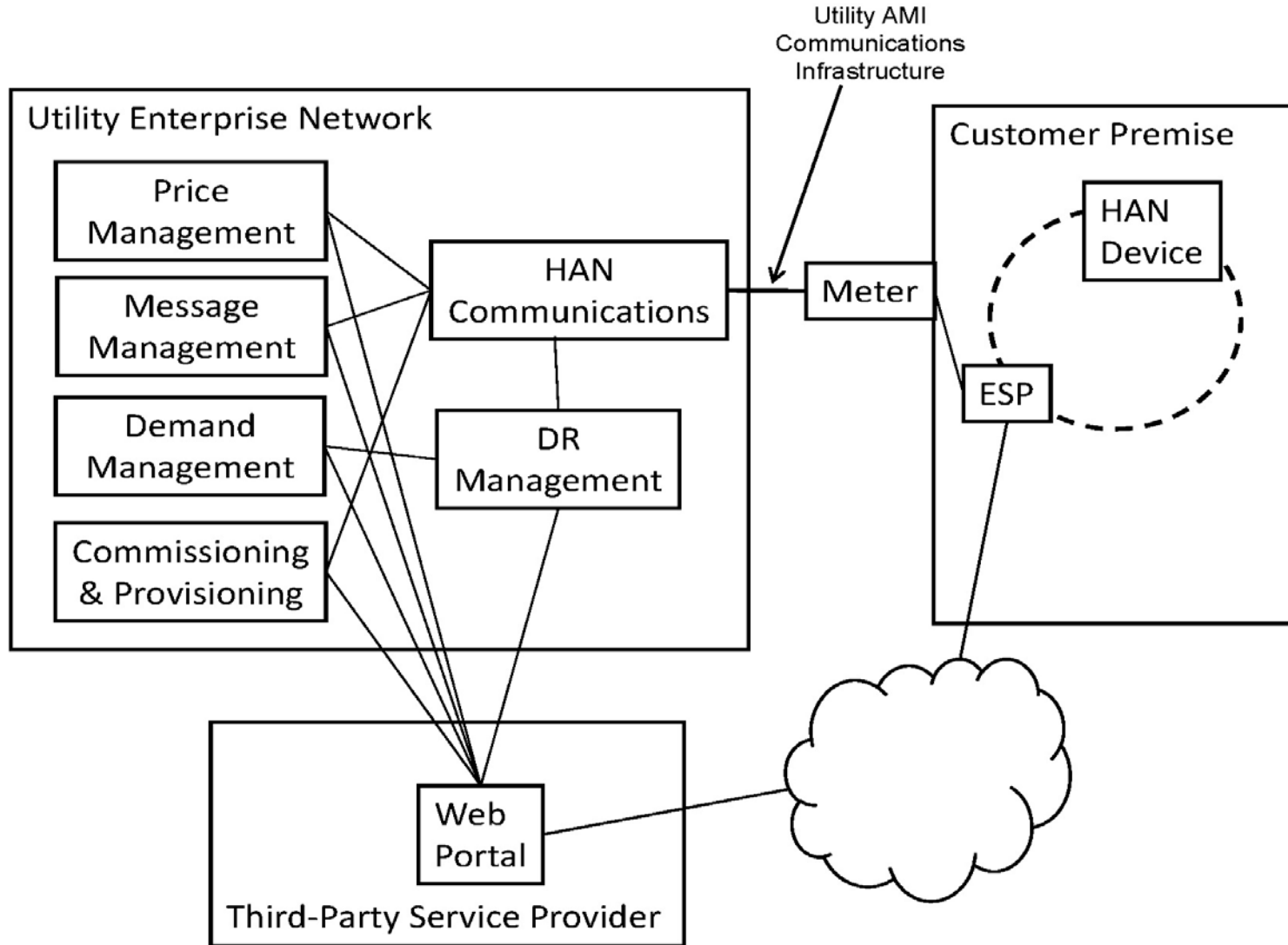
Proposed HAN Functions

To Learn More

- Join the Initiative!
- Download the V3.0 specification or Utility User's Guide from web site
- Browse the web services on the web site or download version for local hosting
- Watch the web site for developments and subscribe to the MultiSpeak mailing list (www.MultiSpeak.org)

For Further Information, Contact:

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