A Proposed Service Mapping Between the MultiSpeak® Specification and IEC 61968-9

Gary A. McNaughton

Cornice Engineering, Inc.

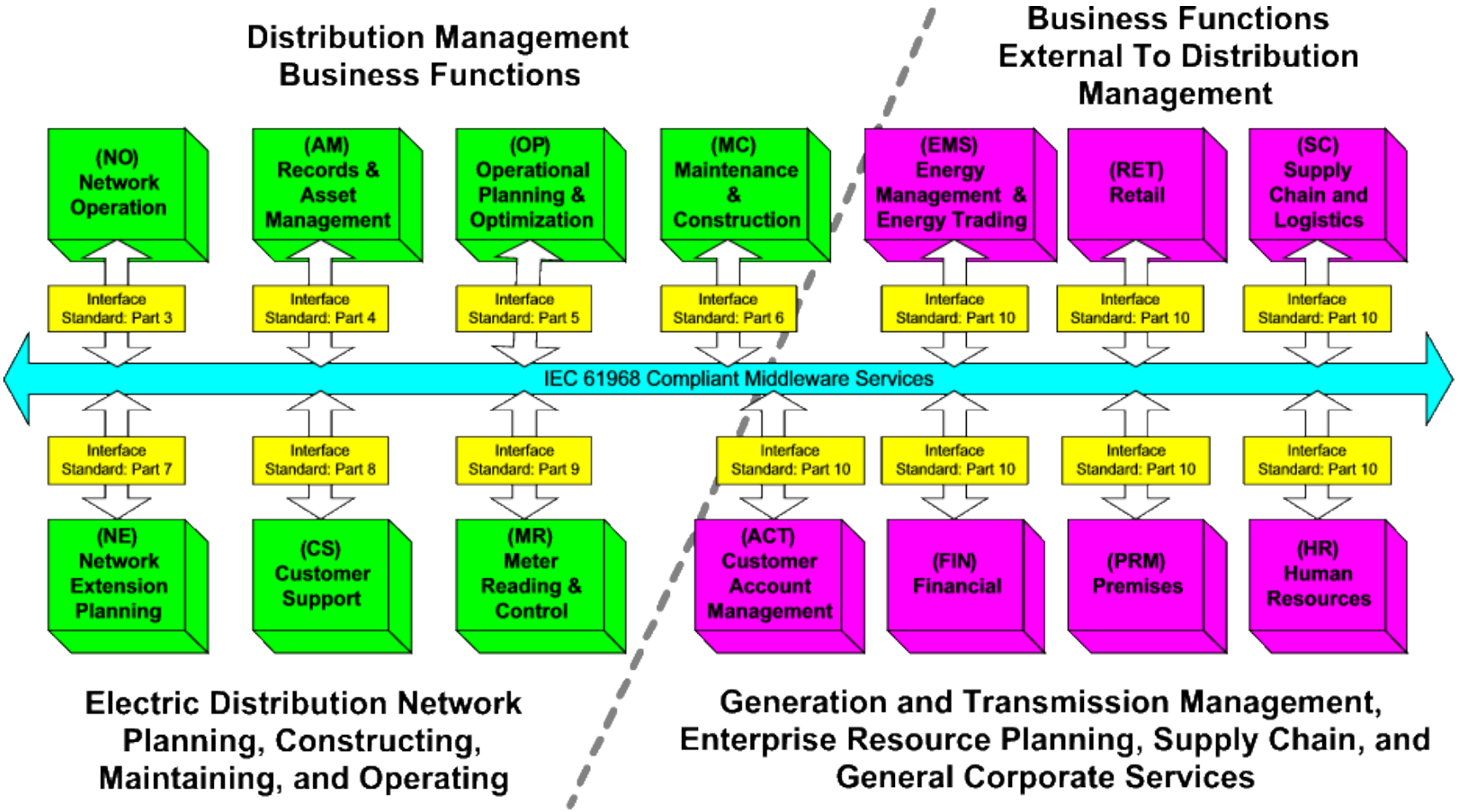
Outline

- Introduction to MultiSpeak® and IEC 61968 CIM
- Process for performing a mapping
  - Message construction
  - Mapping message headers
  - CIM message to MultiSpeak web service method
  - Payload mapping
- Conclusions

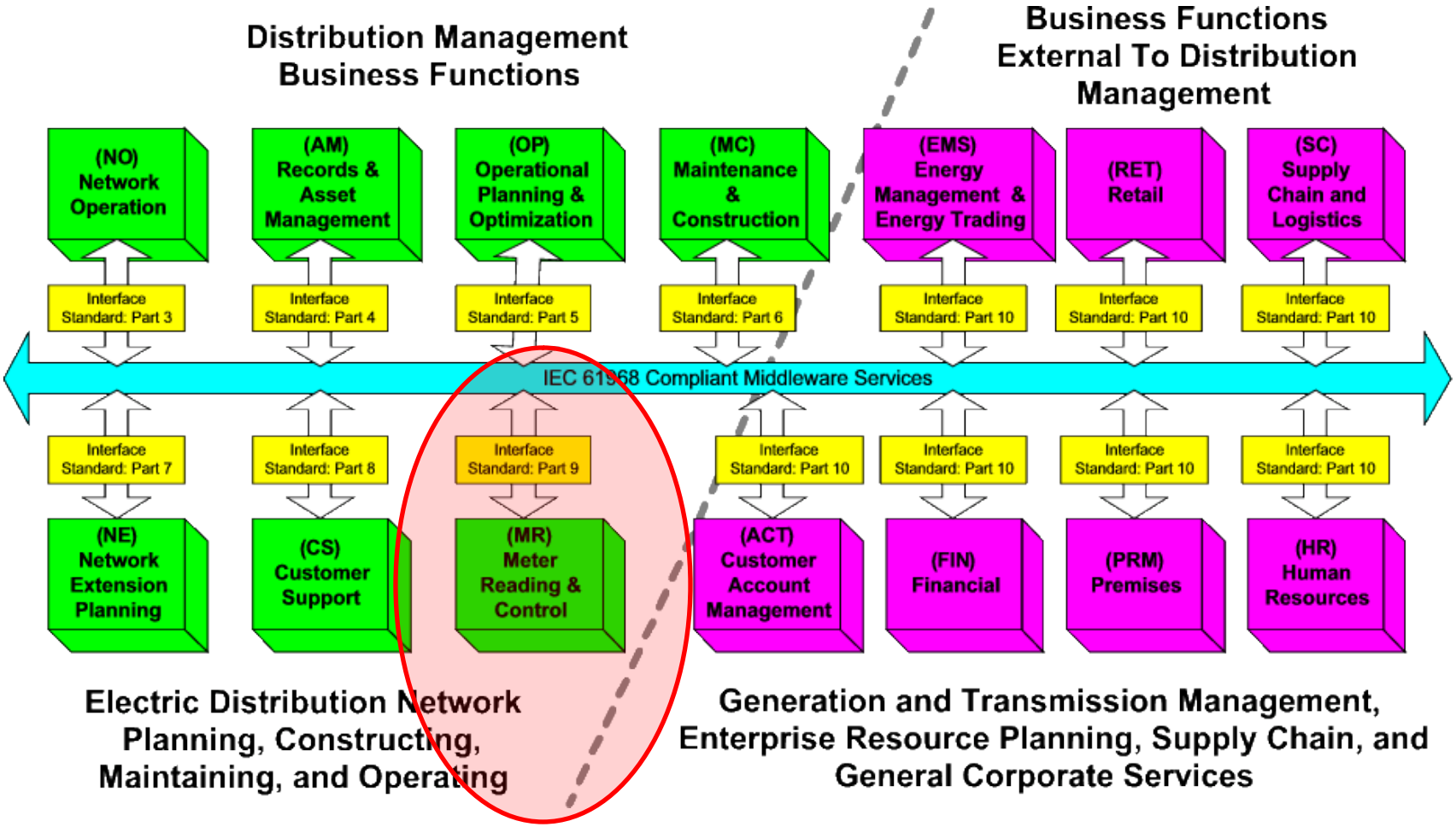
Introduction to IEC 61968

- Maintained by IEC TC57, WG14
- Scope is larger than MultiSpeak, but is less mature
- Implementations based on CIM data model in place at dozens of utilities
- Implementation is messaging-based and transport agnostic, currently no transport profiles defined
- Interoperability testing has occurred for two limited profiles (transmission and balanced distribution power system model exchange; unbalanced CDPSM IOP will occur in December)
- Interoperability testing will be performed on the meter reading and control profile (Part 9) this year for the first time.
- Core CIM in IEC 61970; distribution extensions in IEC 61968
- For more information see: http://iectc57.ucaiug.org

IEC 61968 Reference Architecture



IEC 61968 Reference Architecture



Introduction to MultiSpeak®

- Developed by NRECA in collaboration with key industry vendors, originally to serve small utilities with limited IT staff and no messaging infrastructure
- Covers applications of interest to distribution utilities
- Standard is mature, but scope is continuing to grow
- In use at hundreds of utilities
- Mature interoperability testing program, applies to all interfaces
- Implemented using XML; web services and batch transport profiles defined
- More information and specification available at www.MultiSpeak.org

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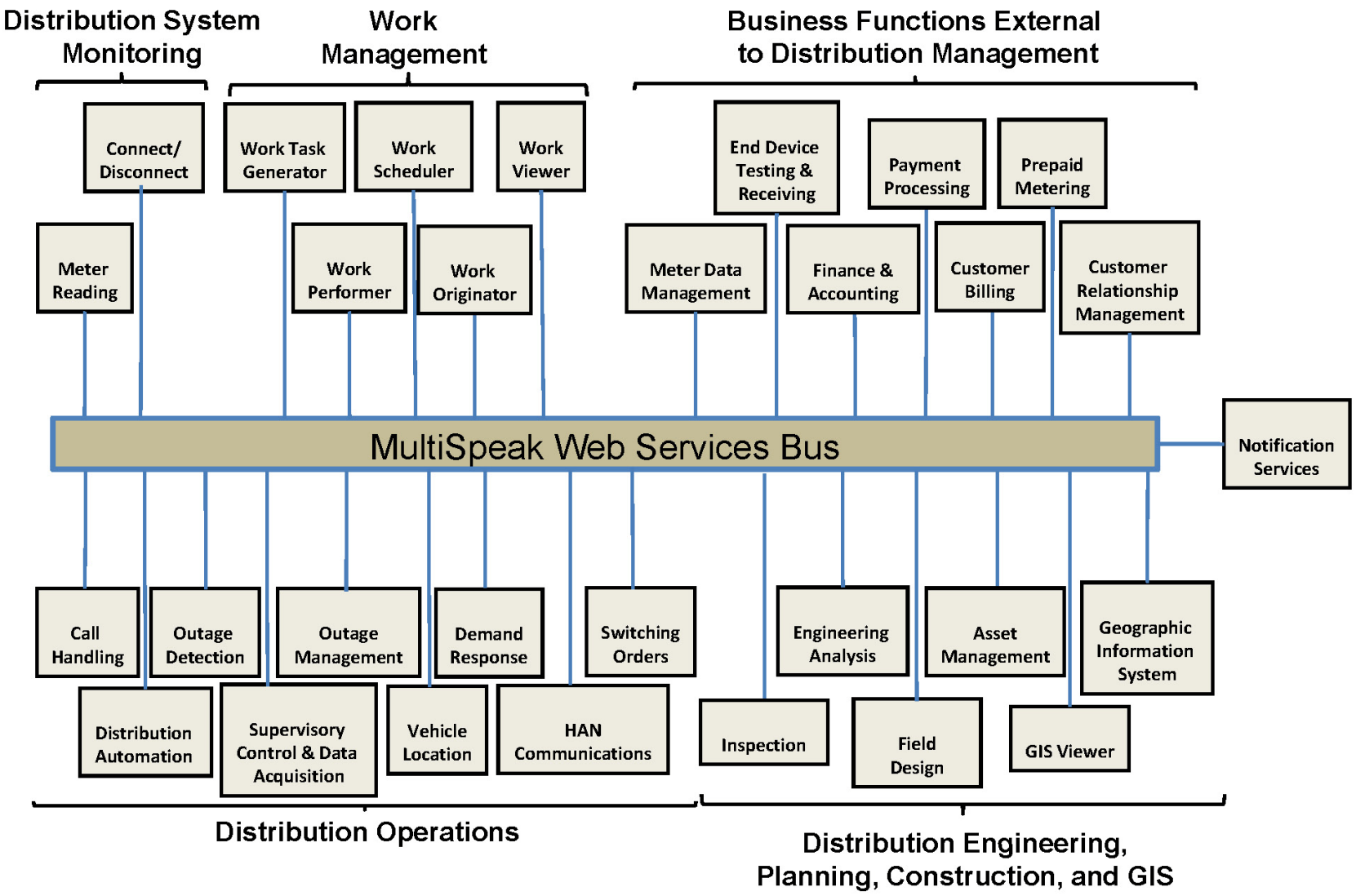
MultiSpeak Architecture



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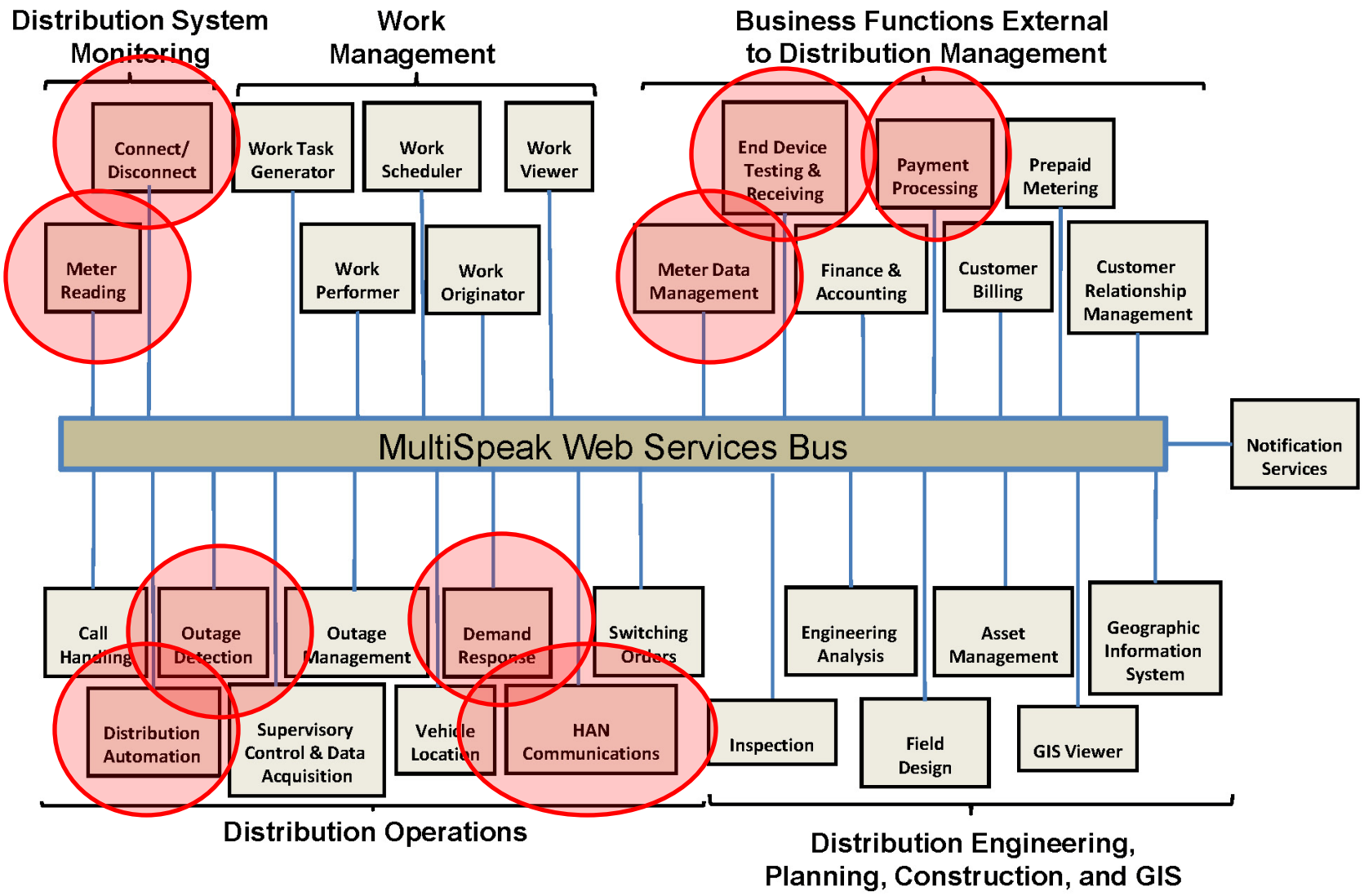
MultiSpeak Architecture



GWAC Stack Context

GWAC Stack Context

Steps in Mapping

1. Mapping Message Patterns
2. Mapping Message Headers
3. Finding Corresponding CIM Messages and MultiSpeak Web Service Methods
4. Mapping Data Payloads

1: CIM Message Patterns

Operation Naming Pattern: <IEC Verb><Information Object>

IEC Verbs

CREATE
CREATED
CHANGE
CHANGED
CANCEL
CLOSE
DELETE
GET
CLOSED
CANCELED
DELETED
SHOW
REPLY
SUBSCRIBE
UNSUBSCRIBE

Example:

GET(Customer)

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1: MultiSpeak Message Patterns

Operation Naming Patterns:

Request/Response	<Verb><Object><Parameters>
Publish/Subscribe	<Object><Parameter><Verb>
Initiate/Cancel Actions	<Verb><Object><Parameters>

MultiSpeak Service Naming Verbs:

Request/Response Verbs

Get

GetCustomerByCustomerID

Publish/Subscribe Verbs

Notification
Transaction

MeterAddNotification

Initiate/Cancel Verbs

Cancel
Delete
Disable
Display
Enable
Establish
Initiate
Insert
Modify
Ping
Register
Request
Schedule
Unregister
Update
Write

InitiateGroupMeterRead

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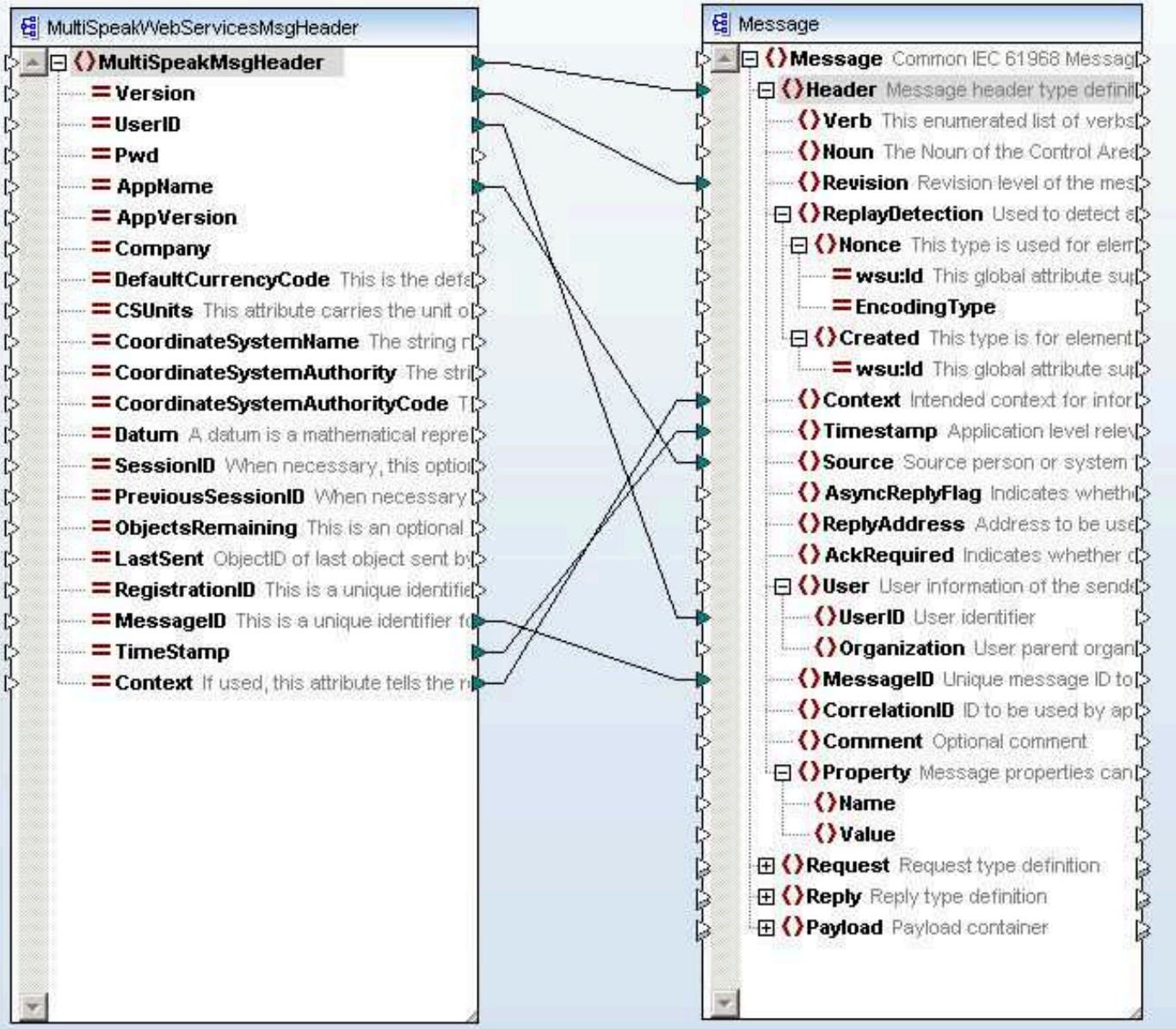
2: Mapping Message Headers



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3: CIM Messages & MultiSpeak Methods

Action	CIM Message	MultiSpeak Method
Outage detection •Req/Res •Pub/Sub	GET(EndDeviceEvents) CREATED(EndDeviceEvents)	InitiateOutageDetectionEventRquest ODEventNotification
Meter Test	UPDATE(EndDeviceAssets)	MeterTestTransaction
On-Request Meter Reading	CREATED(MeterReading)	ReadingChangedNotification
Remote Connect or Disconnect	CREATE(EndDeviceControls)	InitiateConnectDisconnect
Exchange Meter Data	CREATE(MeterAssetConfig)	MeterChangedNotification
Meter Health Event	CREATED(EndDeviceEvents)	MeterEventNotification

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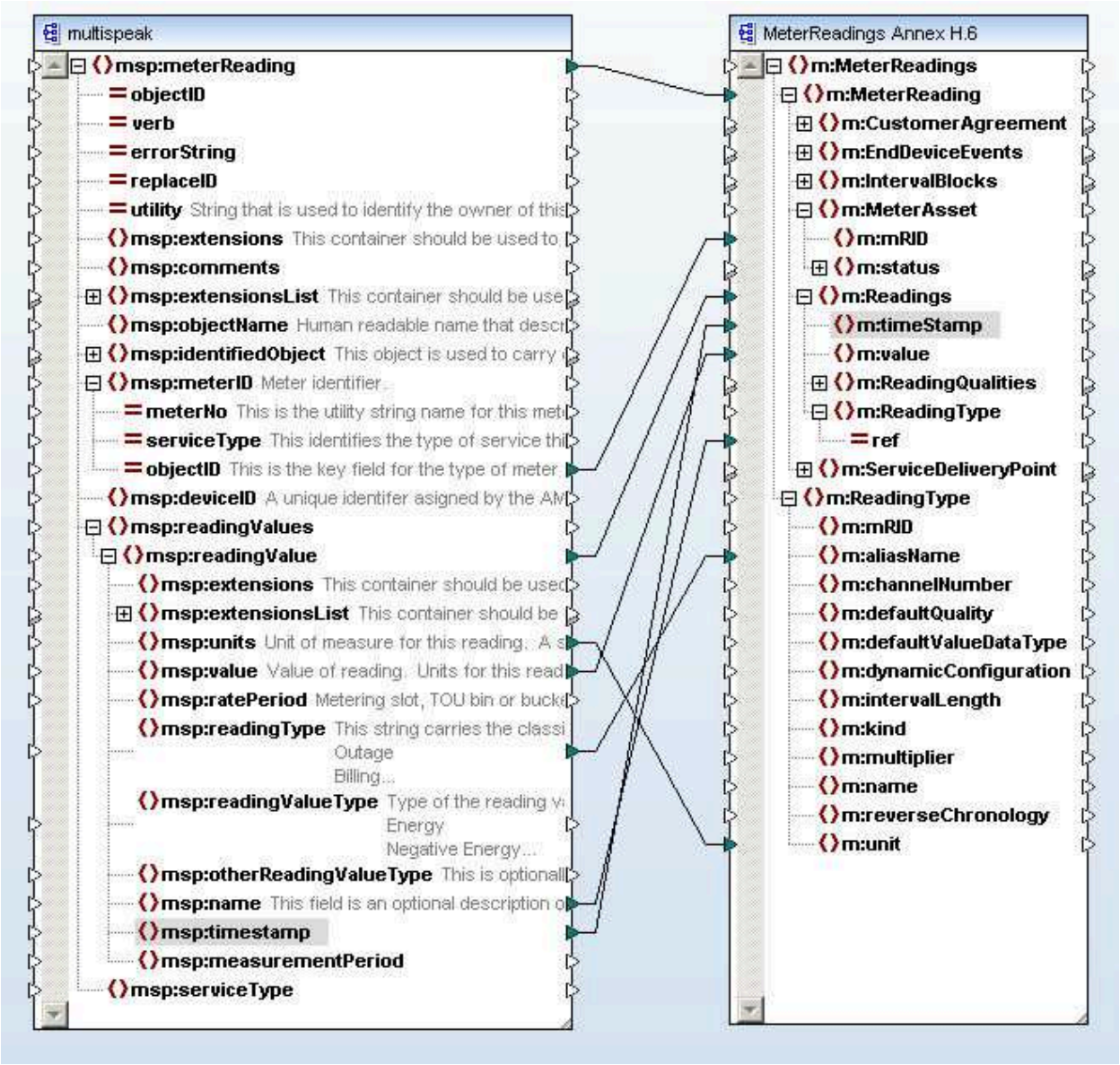
4: Mapping Message Payloads



Conclusions

- This work presents an approach to mapping, starts the mapping for several use cases and studies one in detail
- Not surprisingly the two standards are semantically similar
- The differences usually relate to different architectual assumptions
- With work, CIM messages and MultiSpeak methods can be mapped and electronically converted
- The more useful outcome of the mapping will be to find where two are fundamentally **different;** both communities can learn and improve their standards
- Now the hard work needs to be completed…

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For More Information

Gary McNaughton

Cornice Engineering, Inc.

P.O. Box 155

Grand Canyon, AZ 86023

gmcnaughton@corniceengineering.com

For More Information about MultiSpeak See:

www.MultiSpeak.org

For More Information about TC57 and CIM See:

http://iectc57.ucaiug.org