



EPR

ELECTRIC POWER
RESEARCH INSTITUTE

CIM – MultiSpeak™ Harmonization

Gerald R. Gray, PhD

CIMUG

November 17, 2011

Contents

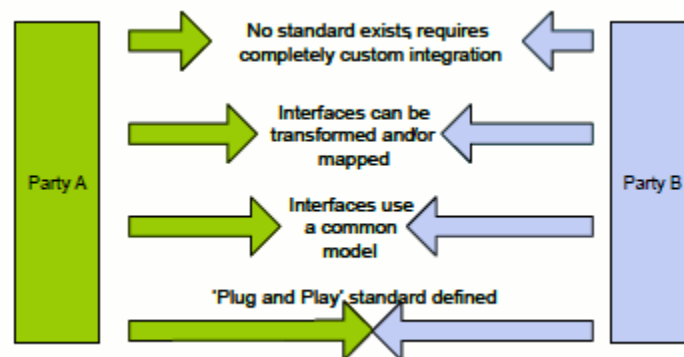
- Brief background on CIM and MultiSpeak™
- The need for harmonization
- Harmonization strategy
- Crafting MultiSpeak™ profiles
- Status of profile generation
- Integration proof of concept

CIM – MultiSpeak™ Background

- CIM
 - IEC 62325, 61970, 61968
 - Tends to be used by larger utilities
 - International standards, slower change
- MultiSpeak™
 - Tends to serve smaller utilities
 - While used internationally, based in US
 - May change rapidly

The Harmonization Need

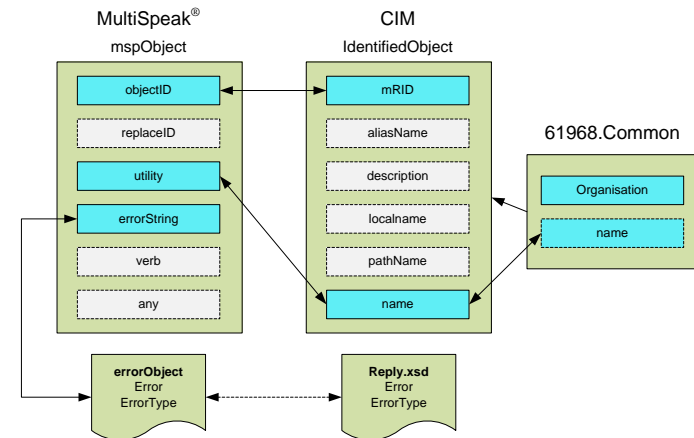
- Utility application integration
 - Dissimilar interfaces drives up integration costs
- Vendor confusion
 - Supporting multiple interfaces drives up vendor costs
- Addressing gaps in the standards
 - Different systems integrators will have different solutions



Source: Gridwise Interoperability Framework

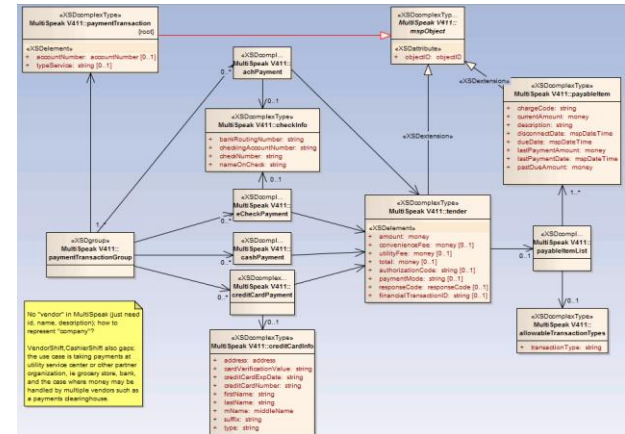
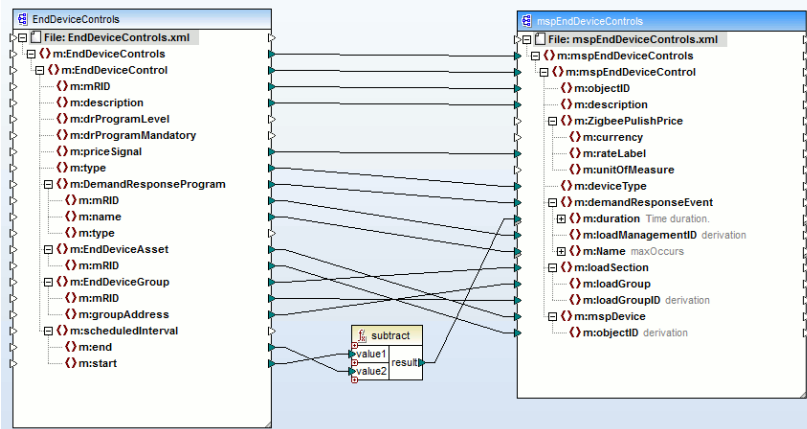
Harmonization Strategy

- Start at the top
 - Compare the highest level classes
- Ontological view
 - Fundamentally both models represent an ontology
 - Imported and compared models using RDS files and Protégé
- Comparison and mapping of profiles
 - Smaller “snapshot” of the model
 - MultiSpeak™ profiles had to be crafted before comparison



Crafting MultiSpeak™ Profiles

- Start with a CIM 1st Edition profile
 - IEC 61968-9
- SparxSystems Enterprise Architect
 - Both CIM and MultiSpeak™ use EA for model management
 - CIMEA add-in for modeling and XSD generation
- Altova MapForce for profile mapping



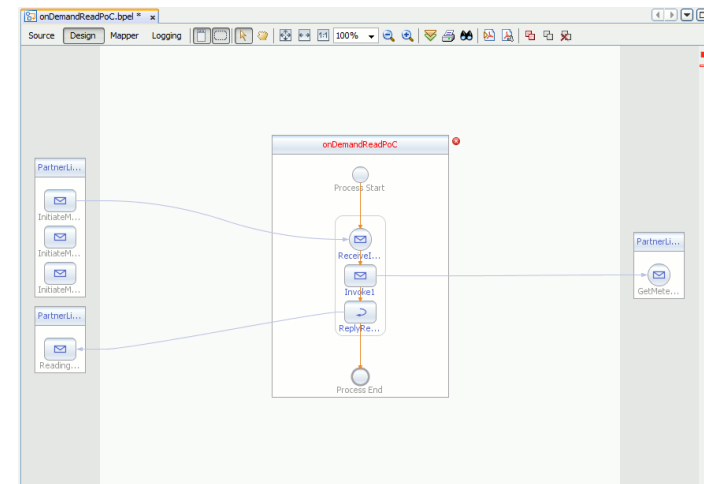
Profile Status

- Document correlations, transformations, gaps
 - IEC 61968-14-1, IEC 61968-14-9-1
 - Gathering international support, need 5 countries
 - US, Canada, South Africa, ...
- Recommendations:
 - MultiSpeak Technical Committee
 - CIM Modeling Managers

Profile	Status	Profile	Status
EndDeviceAssets	In Progress	SupplierConfig	Completed
PricingStructureConfig		ServiceDeliveryPointConfig	In Progress
CustomerMeterDataSet	In Progress	MeterAssetConfig	Completed
TransactionRecord	In Progress	MeterAssetReading	In Progress
MeterServiceRequests	In Progress	CustomerAgreementConfig	Completed
AuxiliaryAgreementConfig	In Progress	MeterSystemEvents	Completed
ServiceLocationConfig	Completed	MeterReadSchedule	Completed
SDPLocationConfig		EndDeviceFirmware	Completed
MeterReadings		EndDeviceControls	On Hold
CustomerConfig	In Progress	CustomerAccountConfig	Completed
ReceiptRecord	Completed	EndDeviceEvents	Completed
		ServiceCategoryConfig	Completed

Integration Proof of Concept

- Using OpenESB
 - Map MultiSpeak™ to CIM service
 - CIM service based on IEC 61968-100 CD
 - On Demand Read use case
 - MultiSpeak
 - InitiateMeterReadings
 - ReadingChangedNotification
 - CIM
 - GetMeterReadings



Recap

- CIM and MultiSpeak are both important utility ontologies
- Profiling process has revealed important similarities and differences
- Harmonization can help reduce integration costs
- Utilizing the strength of the each model when addressing gaps brings the models closer over time
- Addressing the gaps increases maturity and usefulness

Together...Shaping the Future of Electricity