**TITLE:** CIM Based Integration

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West Monroe Partners is currently engaged in a multi-year smart grid implementation to integrate numerous systems for a suburban Chicago public utility. This utility supports over 50,000 electric meters and utilizes four separate, key software platforms and vendors to provide the desired smart grid functionality. The included systems are comprised of an Automated Metering Infrastructure system, Customer Information System, Meter Data Management System, as well as a Load Control Management / ePortal System. West Monroe Partners was brought on to design, implement, and test the technical integration of these proprietary systems across a variety of integration use cases.  In order to do so, the team was inherently tasked with developing a system that could effectively perform data synchronization between systems, automate business processes, and enable a composite ePortal.

During the design phase, the system architects made two important decisions.  One was to use an Enterprise Service Bus (ESB) architecture for nearly all of the system interfaces.  Second, the architects decided to use the electrical distribution extension of the CIM, IEC 61968, as an internal semantic model within the ESB.  These decisions were made to most effectively translate and transfer messages between the vendor platforms.  Doing so was not a small undertaking, but rather required a significant amount of effort.  The mappings proved complex because the proprietary software vendor data models did not directly align with the CIM and because the utility desired to have most data points in multiple systems for easy access to a segregated user base.  Ultimately, the integration team created a customized semantic model by extending the CIM which they used to implement over 40 integration use cases, including such things as smart meter billing, connecting and disconnecting meters remotely, performing on-demand meter readings, processing automated meter readings, handling meter alarm notifications, and interacting with Home Area Network devices.

While it was quite an endeavor to use the CIM as an internal semantic model for four software platforms, it has proven to be well worth the investment. By doing so we have been able to dramatically cut down on the total number of mappings, and have also created a system that is much more flexible by simplifying the data transfer, thus allowing the addition of other systems in the future to be more streamlined.  From our presentation, we hope the audience will learn about translating between vendor data models and the CIM, extending the CIM, and benefits delivered by the ESB architecture.