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## **Getting It Together: Fitting Moves in MDM Integration**

By Betsy Loeff  
Utilimetrics News Writer

As chief operating officer for the meter data management (MDM) company WACS, Kris Beck has seen plenty of utilities tackle system integration projects during her 15-year career. Her vast experience leads her to know one thing is certain: “You can talk about trends, but utilities have such varied information technology environments, legacy systems and goals, each utility will face different challenges when they’re implementing a meter data management system.”

That said, Beck and others still are willing to voice their views on best practices in MDM integration. Following are a few pointers from some who’ve successfully navigated that process or are right in the thick of it.

### **MDM First**

Just a few years ago, utility managers were happily installing advanced metering technology without meter data management systems to support them. They assumed the data would take care of itself. Many have found it doesn’t.

Gary Nieborsky is manager of engineering and operations at Kootenai Electric Cooperative in Hayden, Idaho, and his utility's 20,000 customers have had their meters read via the TWACS by Distribution Control Systems, Inc. technology for several years. In fact, Nieborsky says his utility was a beta site when DCSI was still honing its power-line communications meter reading network.

Does Kootenia have an MDM? Not yet, Nieborsky says. But, he thinks that will soon change.

"There are tons and tons of data," he explains. "Every night we generate about 35 different files and, from those files, we do our extracts for billing, the geographic information system, the outage management system. Then, the data just sit there. They get archived and sit."

Nieborksy says it would be great if Kootenai had a central repository for those data and they were all in one form. As it is, even simple analysis tasks require mangers to "pluck each of those files and shake them all into a box to get all the data together. It's a labor intensive process," he notes.

Bill Cloutier, MDM program manager for DTE Energy in Detroit, says his utility's MDM team is already at work on MDM implementation. However, utility managers still are evaluating the advanced metering infrastructure that this MDM will support.

"When we started to look at our peer utilities with AMI deployed, we saw that they were already reaping significant benefits, but many are installing MDM to further the benefits AMI delivers," he says. Among those utilities Cloutier and his colleagues visited, all said, "do MDM before AMI," he maintains.

As Cloutier points out, advanced metering systems deliver different types of data than what is traditionally stored in billing systems today. And, he notes, "Most billing systems

are not designed to store interval data, outage information, meter status information — they're only designed to store monthly billing reads.”

The AMI systems store such data, but only for 30-90 days, he adds. “They're not designed to be massive data storage engines.”

Likewise, Chris King, chief strategy officer for eMeter, an MDM provider, counsels utilities to install the MDM before advanced metering, because an MDM can support the AMI deployment. Some MDM systems aid in route-by-route scheduling of installation crews, he says. Or, the MDM can help with asset tracking by automating the record keeping on new device shipments and installations.

Plus, the MDM helps utilities manage the transition to advanced metering. AMI deployments often span several years, during which the utility may be getting meter reads from a variety of sources. Utility managers may wind up juggling manual readings from meter readers and customers, drive-by AMR and fixed-network, AMI systems simultaneously. Cloutier says one reason his utility went with a pre-AMI deployment of MDM was to manage the transition of meter reading technologies.

Once an MDM is in place, customer information systems can access all the billing reads from one spot in cyberspace, regardless of how those reads come into the utility. “You don't have to modify the CIS to be able to handle multiple types of meter reading data from multiple sources,” eMeter's King explains. He adds that getting multiple files isn't necessarily hard for a CIS to do, “but then you have to check each file to make sure you're getting the reads you expect and, because you're installing new meters every day, the CIS has to change.”

### **MDM ... Even *Without* AMI**

Tyson Roberts, product manager for Itron's Enterprise Edition MDM, says that the multiple reading technologies at most utilities today make MDM a wise addition to any utility's IT shop, with or without AMI.

Even if readers are going out to residences with handheld devices, most utilities will have their C&I meter readings coming in through an MV-90 or some other remote interrogation tool, he says. “Typically, each collection method will have its own data repository, whether they call it an MDM system or not.” That means data validation, editing and estimating probably are going on in multiple locations throughout the enterprise. “With an MDM, the utility can consolidate data in a centralized location,” he notes.

Advantages include better control, according to Roberts. That is, centralized data can be managed according to corporate, not departmental, standards. “We’ve seen instances where a utility’s billing department doesn’t trust data from one group but does from another because standards differ,” he recalls. Corporate standards eliminate such quality control worries.

Consolidated data also eliminate duplicated effort among IT staff. Plus, consolidation addresses the “brain drain” so many utilities face when an employee who is nearing retirement is the only person who truly understands the language of a homegrown MDM solution, “let alone what processes are taking place underneath the covers,” Roberts adds.

### **Best Laid Plans**

If starting with installation of an MDM system is step one in an AMI deployment, what’s step two? According to Beck, once the MDM is integrated with the AMI vendor system(s); integration with the utility billing system is a smart next move.

“The core function of the MDM system is to bring in all the meter reading data from any source — manual read, handheld, drive-by or AMI technology. Then, you get it all in one place, validate that it’s accurate, and ensure you’re able to provide the best possible read to the billing system when it’s time to bill the customer,” she says.

Although she notes that it's difficult to pin down a timeline for this activity, she also says that utilities should count on spending three months to six months in this integration effort. That's true even if the off-the-shelf MDM has an API (application programming interface) already in place for your billing system. "The larger the project, the longer time it takes," she adds, because there are more players to coordinate.

In fact, Beck says that one of the biggest mistakes she sees utility staffers make is underestimating the time and dependencies involved in an MDM implementation. Surprises and hidden challenges happen, she warns.

According to her, "Often, utilities undertake multiple projects at one time. They're implementing MDM at the same time they're changing out an asset-management system or upgrading the CIS for example," which means there are usually multiple players involved, such as vendors of the other system components. Invariably, Beck says, issues crop up that require modifications in one or more of those other systems. "The project schedule must consider third-party development cycles and time frames. What you thought could be done in three months, they may not even be able to put on their docket for six."

Beck says such complications are common when utilities are making IT changes that touch multiple systems.

"Don't underestimate the complexity of MDM," says DTE's Cloutier. "It's an enterprise-wide project. You not only need to share data with billing, you also need to share with outage management, credit and collections, work management" and more.

What kind of integration challenges does this present? According to Cloutier, it means "you need to design your architecture up front in a flexible way, using service-oriented architecture (SOA) techniques."

SOA links digital services, or units of work, within a computer application. Cloutier says the advantage of this architecture is agility. “As applications need services from other applications — or can provide services for viewing by other apps — they easily interface and can be changed out over time. You don’t have to change every interface. You just change the interface to one thing,” which in DTE’s case is an enterprise service bus, or type of computer middleware infrastructure.

DTE is building its own bus because the utility has a strong IT department and because this utility didn’t make AMI its primary reason for adding an MDM. Rather, the utility was facing end-of-life issues with its commercial and industrial billing system — a custom-coded MV-90 solution. There was no simple upgrade and, because utility managers had to add a new MDM anyway, they decided to take advantage of their strong IT support and build their own using an EnergyICT database as the system’s core.

Other utilities may choose the more popular route of buying an MDM off the shelf, but most MDM providers agree that SOA is the way to go. “SOA is not ubiquitous at utilities, but it’s the direction things are moving and we fully support it,” Beck says. “I think it’s a must in this new world,” notes Itron’s Roberts.

“What should happen is that people in the utility who need meter data to perform their jobs — get bills out the door, answer customer requests, perform load research, restore outages — should not have to care what systems the data run through,” he explains. “The only way to do that effectively is to implement a really strong and robust service oriented architecture in the utility.”

### **A Few More “Shoulds”**

Along with SOA, experts in the MDM field offer a few more best practice pointers:

**Know your master.** That is, one system is the “master” for certain data and all others are “slaves.” Any changes to data should occur in the master, then be synchronized so that slave systems follow suit. That way, all the systems operate on concurrent data.

**Meet vendors halfway.** Integration is a two-way street. As Beck explains, outside vendors typically integrate up to a demarcation point, which often is the enterprise service bus. Utility staffers or system integrators take it from there. It's their job to plug the interface into individual applications, and utilities need to plan for this effort.

**Know your requirements and spend time fleshing them out.** Both Beck and Roberts stress the importance of knowing what you want the data to do, what business processes those data will impact and how you're going to manage them.

Most experts also advise starting with the core of the MDM — which generally involves validating billing data — and plugging other applications into it only after you're confident the data are clean and readily available. “Once you have your core data in place, the uses for those data are limitless,” Beck concludes.