MATURING US AMR MARKET

DRIVES INDUSTRY CONSOLIDATION

By Ed Finamore

As AMR implementation achieves peak momentum in the US, the clock is ticking for many smaller AMR suppliers, and consolidation activity is increasing at an accelerating pace.

When assessing the status of the United States AMR market back in 2003, most industry analysts felt that a considerable upside existed for AMR technology, including the involvement of a growing number of emerging AMR vendors. Today, just three years later, it is apparent that this widely recognised window of opportunity is rapidly closing. As AMR has gained widespread acceptance among utilities in the US, the focus has shifted over the past few years from evaluation of new untested technologies to refining the business case and pursuing optimum levels of deployment and integration. As a result, many smaller AMR vendors are finding themselves being left behind.

In today's competitive environment, utilities considering AMR have become preoccupied with the need for new AMR systems to scale and integrate well with other enterprise applications such as CIS, outage management, GIS and revenue recovery. Their increasing focus on best-in-class performance has reached the point where enterprise level applications such as AMR typically require a high degree of integration with other systems in order to achieve the necessary benefits to satisfy their business case. This trend is not encouraging for smaller AMR suppliers that have not yet demonstrated an ability to scale beyond a few thousand meter points, or integrate smoothly with other utility applications.

Around this same period, a leading industry publication reported that by the end of 2003, an estimated 16.5% of North American utility meters had been outfitted with AMR, and that overall market penetration would likely reach 20% by the end of 2004. A year later, nearly 30% of all meters had been automated, and that publication's prediction of a nearly 40% penetration by 2008 appears to be on target. Based on some recently-announced contract awards, this figure could actually turn out to be conservative.

Over the past year, Itron has announced major deployments at Piedmont Natural Gas, Southwest Gas and Progress Energy that – when completed – will automate an additional 4.5 million meters. Though mostly limited to mobile systems, these announcements represent major commitments by large utilities to proceed with the AMR installations that best align with their business needs. CellNet Technology also recently announced major new deployments of its fixed network technology at Ameren, We Energies and a large gas meter installation at Laclede Gas. And coming off successes at PPL Electric Utilities and Wisconsin Public Service, DCSI announced that it will install a TWACS powerline carrier system at Pacific Gas & Electric. For comparison purposes, Figures 1 and 2 provide industry breakdowns of vendor AMR modules shipped in 2003 and 2005 respectively.

These installation announcements are further evidence that increasing numbers of utilities have studied AMR technology and have developed a sufficient acceptance of AMR benefits to proceed with system implementation. While CellNet and DCSI have achieved notable successes in the fixed network market segment, the large number of mobile systems being installed – including systems at Duke Energy, Dominion, National Grid and others – suggests that for many utilities the business case for fixed network AMR has not yet been made.

EVOLVING MARKET STRATEGY

It is not surprising that as the US AMR market matures, a significant increase in vendor acquisition and partnering activity has taken place to better position AMR suppliers to pursue remaining market share. As investor-owned utilities proceed with pilot installations and full system rollouts, AMR suppliers have begun turning their attention to the large number of still undecided municipals and rural electric co-operatives that present different business models and a different set of customer needs.

Applications such as remote disconnect or prepaid metering, for example, that have experienced only limited appeal for US investor-owned utilities to date, are frequently considered valuable features by municipal utility managers. This has encouraged AMR suppliers to expand their service offerings, and many new features are being introduced through acquisitions and strategic partnerships, rather than by taking on the risks associated with long product development cycles.

Examples where acquisition and partnering strategies are changing the AMR landscape include:

- **Integrated solution for multi-service utilities**. A significant percentage of municipal utilities provide two or more services, such as electric and water or gas, and one

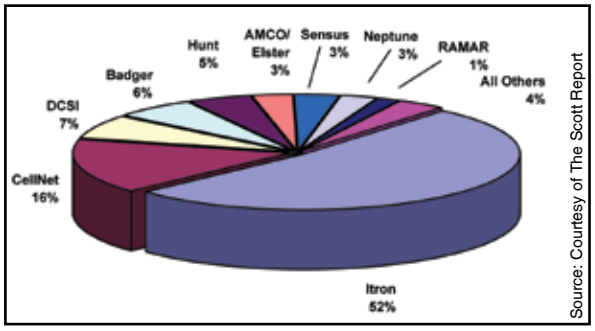

Figure 1 – AMR market share data - 2003

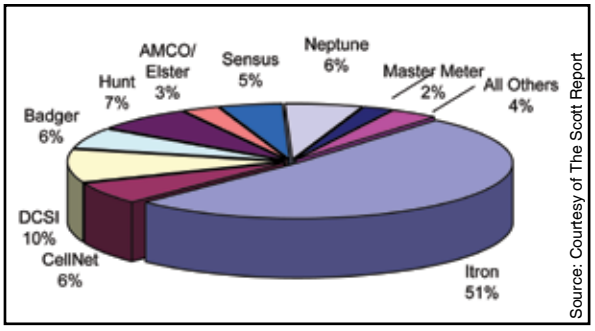

Figure 2 – AMR market share data - 2005

AMR system capable of reading all meters is usually preferred. Tantalus Systems and DCSI among others have announced joint technology agreements with Badger Meter that permit these companies to offer water, gas and electric meter solutions to their customers. Sensus recently announced that it had purchased the assets of AMDS and will market its FlexNet system to include electric, gas and water meters.

- **Expanded service offerings.** Over the past few years, ESCO Technologies has acquired CIC Global for prepaid metering, Nexus Energy for meter data management software and Hexagram for wireless AMR. CellNet has begun offering Comverge's demand response functions, and Hunt has partnered with Guardian Prepayment Systems to offer prepaid metering.
- **Meter data management systems.** Large quantities of meter data generated from advanced AMR systems have raised utility awareness that specialised software is needed to manage the huge volumes of data. As mentioned above, ESCO (the parent of DCSI) acquired Nexus Energy Software for meter data management software. EKA Systems and Hunt Power have announced partnerships with EnergyICT, the Belgian energy management software company, and Itron has further enhanced its internally developed Enterprise Edition software.
- **Expanding communications options.** Many rural electric companies are faced with significant communications challenges within their extensive service areas. For these utilities, frequency, reliability and communications bandwidth requirements are often important specifications to support multiple applications such as SCADA and substation automation in addition to AMR. New alliances are being formed, such as Elster's partnerships with Hunt Technologies and SmartSynch, that broaden the metering and communications options available to utility customers considering AMR.
- **Increased market share through acquisitions.** The Bayard Group's recent acquisition of Hunt Technologies, combined with its Landis+Gyr and Ampy holdings, has the potential to create considerable leverage in AMR markets. ESCO's acquisition of Hexagram gives the company powerline carrier and wireless communications options and a larger installed customer base to market combined solutions for complex utility deployments.

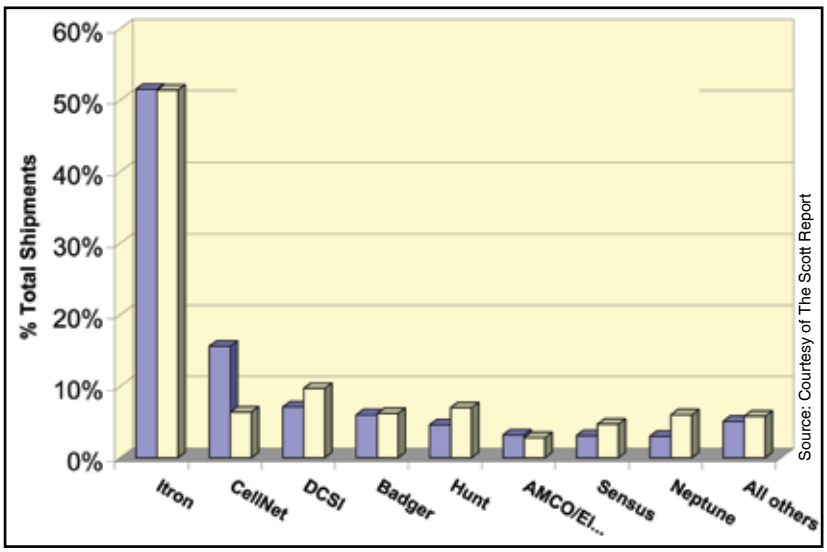

Figure 3 – AMR shipments: 2003 and 2005

These types of initiative are normal reactions to the dynamics of a maturing marketplace where market access and economies of scale could ultimately dictate selection outcomes and AMR technology survivors. As AMR suppliers pursue remaining opportunities through strategic integration of vertical and horizontal markets, smaller vendors and niche market players will have a more difficult time gaining traction. Utility managers considering AMR will continue to study technology options and refine their business cases in advance of making final deployment decisions. Increasingly, their vendor selections are being made in favour of larger suppliers capable of delivering hybrid, well-integrated solutions.

In an industry where building relationships is an important part of the utility selling cycle, smaller AMR vendors often lack the financial resources necessary for serious consideration by most larger utilities. For smaller suppliers, getting utility 'face time' is essential to building a strong enough relationship to overcome a natural reluctance to entrust mission-critical AMR systems to small vendors. Unfortunately for many of these vendors, brand recognition is practically nonexistent among utilities, since their advertising budgets are small and existing deployments are limited.

LEAP OF FAITH

While many emerging vendor AMR technologies were developed in the same manner as the technologies of larger providers, and frequently work as well or better in the lab, a commitment for large-scale system deployment requires a leap of faith that many utility managers are unwilling to take. The newer wireless mesh network technologies, for example, include several variations that require a moderately-sized deployment to adequately demonstrate the identification and self-healing characteristics touted by their developers as representing superior network performance. These deployments can become costly in certain topological conditions, and involve a substantial financial commitment on the part of smaller AMR vendors to sufficiently demonstrate their technology.

Some obstacles encountered by small AMR vendors which place them at a competitive disadvantage include:

- More pilot installations are required to demonstrate performance, since few large commercial system deployments exist for reference.
- Manufacturing facilities have not been established to handle production of large quantities of AMR modules, which adds significantly to deployment lead time.
- Scalability cannot be adequately demonstrated through pilot deployments.
- Warranty issues are more significant, since fewer field installations exist to confirm product reliability.
- System integration and testing capabilities have not been adequately demonstrated.
- Prior experience with large system field deployment challenges such as rerouting, data processing and work force management is not sufficient to engender confidence that large installations can be successfully managed.

In addition, many utilities require performance bonds or other guarantees to ensure that an AMR vendor has adequate

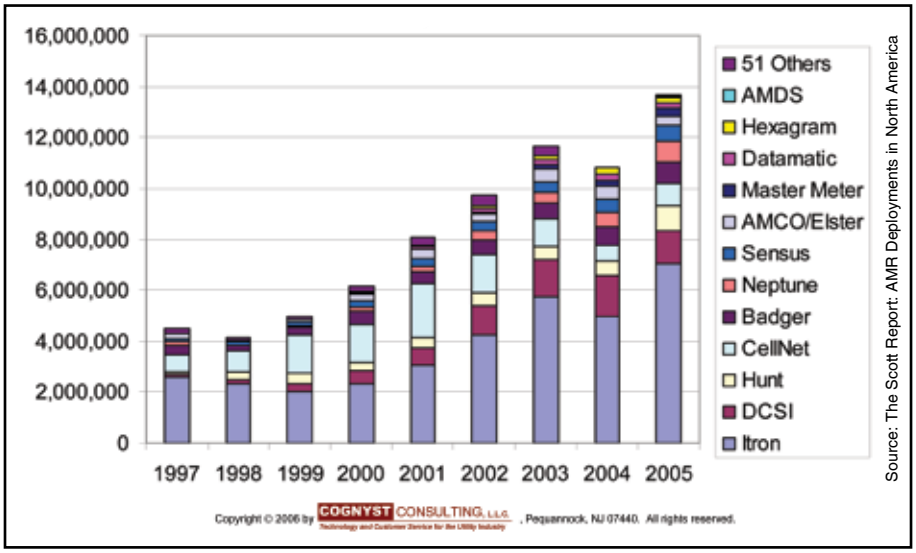

Figure 4 – AMR market is dominated by a few large vendors

resources to complete a large system deployment. This adds to the overall cost of the project, and can place small vendors at a further financial disadvantage.

It is therefore not surprising that an examination of AMR module shipments over the past few years reveals that no new US AMR providers have obtained significant market share since 2003. Figure 3 provides a comparison of vendor shipments for 2003 and 2005 respectively, and indicates that no emerging US AMR provider has cracked the top eight suppliers in terms of shipping volume during this period. In fact, excluding these major vendors, the data (courtesy of *The Scott Report*) shows that all remaining suppliers accounted for less than 6% of total shipments in 2005.

Figure 4 provides a detailed breakdown of cumulative US AMR shipments for the years 1997-2005, and reveals that of the 63 companies reporting AMR shipments in 2005, 51 have cumulatively reported less than 1% of total shipments. Clearly the current picture is not an optimistic one for smaller AMR vendors attempting to penetrate the US AMR market.

STILL REASON FOR OPTIMISM

Does this inevitable march towards industry consolidation mean that all hope is lost for small AMR vendors? Of course not. Some important characteristics of this market provide reassurance that a place can still be found for smaller vendors with creative new technologies.

To begin with, no industry consensus exists concerning an optimum AMR technology. The large number of variables affecting AMR selection will continue to ensure that wireless proprietary, licensed and unlicensed, telephone-based, powerline carrier, mobile, and handheld alternatives all have the potential to be considered in the right circumstances – particularly where unit cost may not be such a critical factor.

Partial deployments continue to be considered by some utilities looking for targeted solutions, which limits the total number of meter points and system interfaces that are required for a particular installation. These smaller deployments are often handled by the utility itself rather than by an installation contractor, which increases the value of a close vendor/utility relationship.

And larger suppliers typically have higher marketing and distribution costs and administrative overheads that place them at a competitive disadvantage for smaller deployments. By staying lean, small companies can compete despite having reduced staff, which tends to offset their slightly higher unit product cost. For small volumes, larger suppliers are often not able to reduce their overheads enough to successfully compete for business on a firm price basis.

Occasionally a utility will look to AMR to provide one specific application where a high priority business need exists. Energy management in-home displays and load control functions are examples of applications that may warrant the use of a particular technology, for which a smaller vendor might have the best solution. Emerging communications technologies such as WiFi, BPL, and ZigBee could also provide new opportunities for smaller vendors – and where pilot installations are involved, small vendors can often show a higher level of responsiveness to utility concerns by providing more hands-on involvement during the piloting process.

CONSOLIDATION MAY BE FINAL REWARD

For many of the 51 US AMR companies cumulatively providing less than 1% of shipped devices in 2005, however, consolidation in the form of sale of the company may be the last best chance to recover years of investment in AMR-related technologies. And judging from some recent announcements, the remaining survivors seem willing to pay big dollars for the right technology that broadens their solution sets and improves their chances for success.

Since Itron rocked the industry with its purchase of Schlumberger Electric Metering, acquisition activity has continued. Following its November 2005 acquisition of Nexus Energy for over $28 million, ESCO Technologies provided an encore by purchasing Hexagram in February 2006 for over $67 million. And as mentioned previously, Sensus Metering Systems acquired the assets of Advanced Metering Data Systems (AMDS) for $45 million and future considerations.

To be sure, a large number of meters of all types remain to be automated in the US AMR market – but if recent acquisition activity is any indication, many smaller AMR vendors have already begun looking for a good opportunity to cash out. MI

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ABOUT THE COMPANY: ValuTech Solutions is a privately owned consulting firm specialising in utility automation and AMR, and widely recognised for its expertise in advanced AMR systems. From pre-project planning to technology selection and project implementation, ValuTech is a leader in smart metering project support.

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