AP Systems - Energy Management Systems

Italian Leader in Energy Management Systems reduces costs and speeds up time to market with Sierra Wireless AirPrime WMP100

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AP Systems is a leading supplier of M2M solutions, with a strong focus onEnergy management systems. It operates with a working team of more than130 employees across five offices in Italy and two international branches. APSystems is organised into three technical divisions, each built on a specificspecialisation: PAL providing IT systems for the public sector; MIT whichdevelops M2M systems for the remote management of pipeline meters; andSecurity, tasked with delivering video surveillance systems and other security solutions.

Business challenge

AP Systems develops Multi Metering Management systems for the utilitymarket. AP Systems required a solution that would allow its customers,including some of the

biggest names in the Italian energy market, to efficientlyconcentrate the data flowing from their energy meters and to remotely managethese meters from a central location.

To stay ahead of its competitors, AP Systems is focused on producing highqualityand cost effective solutions. For its Multi Metering Managementsystems, AP Systems were looking for an architecture that would allowreducing the complexity of the system. This has been possible with theAirPrime WMP100 embedded wireless module that integrates the CPU and the 2G modem into a single device.

Davide Bassetto, product manager at AP Systems, explains: “Traditionalarchitectures for meter concentrators have seen the CPU element placedexternally to the wireless modem. If, for example, the CPU element goes endof life, it can produce an engineering headache for the utility as the entireboard needs to be re-engineered to get the concentrator back online. Suchadditional engineering challenges amount to higher OPEX for our customers – something we have always been keen to avoid.”

Having worked together on some of Italy’s largest M2M projects (including thedeployment of 500,000 Sierra Wireless-enabled energy monitoring devicesto most Italian energy distributors), AP Systems was confident that SierraWireless could provide the elements it needed for a successful solution.As Davide explains: “When we started to design this particular solutionwe went immediately to Sierra Wireless. Aside from the quality of its M2Mwireless modules, the support they can offer as a true business partner isunique. They can provide us with value added support and counsel that we simply could not get anywhere else.”

Sierra Wireless AirPrime WMP100 embedded wireless module

Working with Sierra Wireless, AP Systems developed its M3–C concentrator.Designed for the simultaneous remote management of gas, electricity, water,heat and street lighting, the M3–C can manage data from different types ofdevices in a single infrastructure using cellular, low power RF or power line carrier connections.

Combining the benefits of GPRS or EDGE wireless connectivity andembedded CPU functionality, the Sierra Wireless AirPrime WMP100 modulewas selected to power the M3–C concentrator. The surface mount formfactor and dedicated IOs are suited for automated component placement,and enabled AP Systems to optimise its total system cost.

The innovative architecture of the AirPrime WMP100 removes the need tohave different components for the modem and the microcontroller on thePrinted Circuit

Board (PCB), reducing the overall Bill of Materials (BOM) costfor AP Systems and delivering a highly compact, robust and simple solution.

Sierra Wireless Embedded Application Framework

AP Systems has long been a strong proponent of using Sierra Wireless’Embedded Application Framework for developing the software used torun its M2M applications, and the solution plays a key role in operating theM3–C concentrator. The Embedded Application Framework consists of anM2M-specific operating system (Open AT), a range of software libraries,and an integrated development environment (Developer Studio) based onEclipse™. It benefits AP Systems by bringing to bear an innovative operatingsystem that is specifically customised to M2M as well as a range of buildingblocks and toolkits which accelerate the application development process,thereby allowing AP Systems to bring products to market faster and reduce development costs.

Davide explains: “One of the greatest benefits of working within theEmbedded Application Framework is that every investment we have evermade in developing software for Sierra Wireless modules can be extendedacross any new applications. Besides rapidly decreasing time to market fornew solutions it also means we can achieve real return on investment on ourpartnership with Sierra Wireless. The Embedded Application Frameworkand the software it enables was a key reason for us choosing to work withSierra Wireless in the development of the M3–C concentrator.”

Results

The AirPrime WMP100 integrates both the modem and the microcontrollerinto a single unit which reduces the number of components by around 20-30per cent when compared to traditional architectures. As well as dramaticallyreducing the complexity of the solution, making it easier to complete anynecessary field repairs, this approach also reduces the BOM cost, makingthe solution much more cost effective for AP Systems.

Moreover, due to the faster time to market afforded by using Sierra Wireless’Embedded Application Framework, AP Systems is in a good position tostay ahead of the competition in launching new Multi Metering Managementsystems, helping it to retain its leadership in the market.AirPrime WMP100 and Embedded Application Framework benefits AP Systems’ M3–C concentrator by:

- Enabling quick time to market
- Reducing BOM cost
- Reducing complexity and improving in-field repair times
- Increasing return on investment for current and future investments in Sierra Wireless technology
- Delivering robust units with a life-span of between 15-20 years – ideal for use outdoors where weather conditions can be difficult

The M3–C concentrator has already been implemented by a number ofItalian utilities that are enjoying the knock-on benefits of the solution.Amongst other customer deployments, AP Systems has shipped modulesto nine Italian cities and around 3,000 lampposts are being managed by theM3–C concentrator. In this deployment the solution has delivered significantpower reductions by allowing the utility to remotely manage (apply differentlight profiles, switch on/off, read measurements, maintain and diagnose)street lamps according to location, season and time of day. The deploymentalso leads to reduced maintenance costs as repair crews have access toinformation from the lampposts to see which ones need to be repaired atany given time – saving the need for several trips to repair separate lampson the same street. Working with Sierra Wireless, AP Systems is meeting itsaim of providing its customers with a robust metering management systemthat can also deliver measureable OPEX savings and help with the drivetowards a more environmentally friendly industry.

Solution:

- Sierra Wireless AirPrime WMP100 embedded wireless module
- Embedded Application Framework with M2M-specific Open AT OS, software libraries and integrated development environment

Key Benefits:

- Reduced total BOM cost

- Accelerated development time and quick time to market