

BUILDING TOMORROW'S CONNECTED DEVICES: THE TIME HAS COME FOR 3G M2M

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>> A quick glance at the industry forecasts should eliminate any doubt: machine-to-machine (m2m) communications is exploding. ABI Research projects global cellular m2m shipments to accelerate over the next five years, with 123 million units shipped by 2016. As original equipment manufacturers (OEMs) produce m2m solutions for a growing list of industries, one question remains: Which wireless technology will be preferred in the new generation of connected devices?

Until recently, the answer was 2G GPRS/EDGE technology. This made sense; for the majority of m2m applications, 2G services have provided ample bandwidth, latency, and data speeds. Globally, GPRS networks have also achieved the most extensive coverage and offer the lowest module cost.

But today, there are compelling reasons to add 3G UMTS/HSPA technologies to connected de-

vices. A major reason is that market trends and AT&T's unique Mobile Broadband Accelerator (MBA) program are extending all the benefits of 3G connectivity to m2m applications.

Considering Total User Experience

OEMs developing connected devices naturally prioritize cost and coverage when evaluating wireless modules. To calculate the true cost (and benefits) of an m2m technology, however, it's important to look beyond the bill of materials and consider the full lifecycle cost of the device, as well as the user experience it provides.

For example, there remains a broad perception that 2G coverage is superior to 3G. In practice, however, this is not accurate from a device perspective. Since 3G modules include 2G fall-back compatibility, OEMs are not choosing between 2G and 3G technologies. By building connected devices with 3G modules, they get both – and

get better coverage and access in many areas than with modules that support only 2G. Over time, the coverage advantage of 3G-capable devices will increase as carriers upgrade networks.

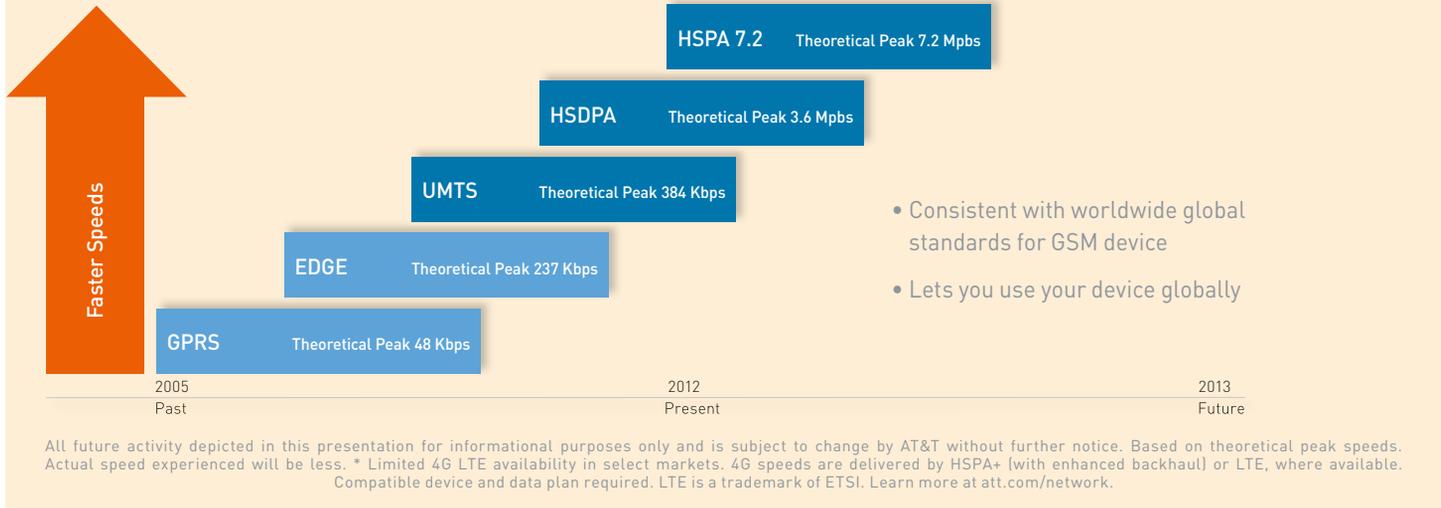
Performance and Efficiency

Modern 3G UMTS/HSPA technologies are also five to over ten times as spectrum-efficient as GPRS, while providing far superior speed. This is vital not just for carriers managing capacity and growing demand, but also for companies deploying many devices. 2G technology was not designed to support the large-scale, high density m2m applications now being deployed. If too many radio devices attempt to connect with a tower at the same time, especially if they hold channels open as some m2m applications do, some devices may not be able to connect. This issue applies to all cellular radio technologies, but 3G UMTS/HSPA is much less vulnerable to this problem than GPRS/EDGE.

Comparatively less efficient 2G technology is a growing problem for network operators. As large-scale m2m deployments

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progress, along with other applications driving exponential data growth, it is critical to use spectrum efficiently to provide good service. Indeed, this is a major reason why many operators are now positioning 3G and even 4G radio technologies for m2m connected devices, which can support many more devices per tower and deliver much better overall performance.

As smartphones upgrade from 2G to 3G to 4G, carriers are shifting spectrum and other network resources to support the tremendous traffic moving to the new networks, while bringing new spectrum into service for 3G and 4G. Too often, discussion of m2m device technology “performance” focuses on speed, making performance seem less important for most m2m applications. But viewing performance in this manner fails to account for performance issues that can affect 2G-only devices on fast-evolving networks, which can degrade the customer experience and increase device support costs.

Building for the Long Run

Perhaps even more important for large-scale m2m deployments is longevity. If a customer deploys tens or hundreds of

thousands of connected devices only to find a few years later that the wireless modules must be updated, that initial technology decision can prove costly. For devices expected to operate in the field for the long term, 3G or even 4G is the clear choice today.

OEMs that wish to deploy globally – hoping to build a device once for deployment on multiple GSM networks – will find it much better to build a 3G/2G-capable device than one that supports only 2G. By doing so, OEMs can continue to benefit from economies of scale, as 3G/2G 3GPP/GSM devices will be operable on over 90 percent of the world’s cellular networks for the foreseeable future. The same cannot be said for 2G-only connected devices, or for CDMA.

Bringing Down Costs

If adding 3G makes good sense from a coverage standpoint and even better sense from a performance, longevity, and global addressability standpoint, what reasons remain to use 2G-only modules? The answer, of course, is cost. However, even if one puts aside total lifecycle costs, and looks strictly at the bill of materials, cost is becoming much less of an issue.

AT&T is working with providers like Telit to bring down the price of 3G wireless modules. Under the AT&T MBA Program, Telit can now offer participating OEMs preferred pricing on 3G modules, making them more cost-competitive with 2G solutions. The program includes a wide range of 3G modules, from consumer-grade to ruggedized modules designed for automotive and industrial applications. Regardless of the industry or requirements of the m2m application, OEMs can now find a cost-effective 3G solution.

In addition, given the improved efficiencies and economies of scale for carriers to support devices on modern 3G and 4G networks, prices for 2G services will likely not remain competitive over time with prices for equivalent service on 3G and 4G networks.

A Proven m2m Provider

Whether moving to 3G solutions today or in the future, it is vital that OEMs choose the right m2m provider. As the first network operator to support m2m applications in North America, AT&T has a rich history of m2m leadership. To date, AT&T has over 1,200 approved devices operating on its network – twice as many as its nearest competitor. AT&T continues to work closely with OEMs and wireless technology vendors to enable more functional and cost-effective m2m solutions. As OEMs build the next generation of innovative connected devices and applications, AT&T can help them capitalize on the m2m revolution. <<