White Paper

M2M White Paper:

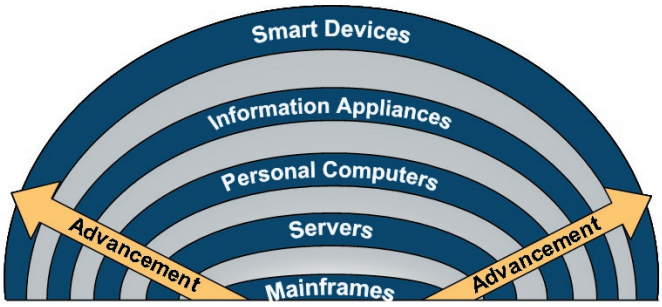
The Growth of Device Connectivity

What Is M2M?

A FocalPoint Group White Paper

M2M stands for machine-to-machine, mobile-to-machine, and machine-to-mobile communications. It is about networking the machines and devices that pervade our everyday lives. M2M communications will connect and enable an array of equipment from mainframes to everyday products (e.g., home appliances, vehicles, buildings) in order to unleash new levels of "smart services" and commerce. [Exhibit A] M2M has the potential to reshuffle entire industry structures and to create a windfall for technology enablers in the arena.

Exhibit A: M2M Connectivity Expansion



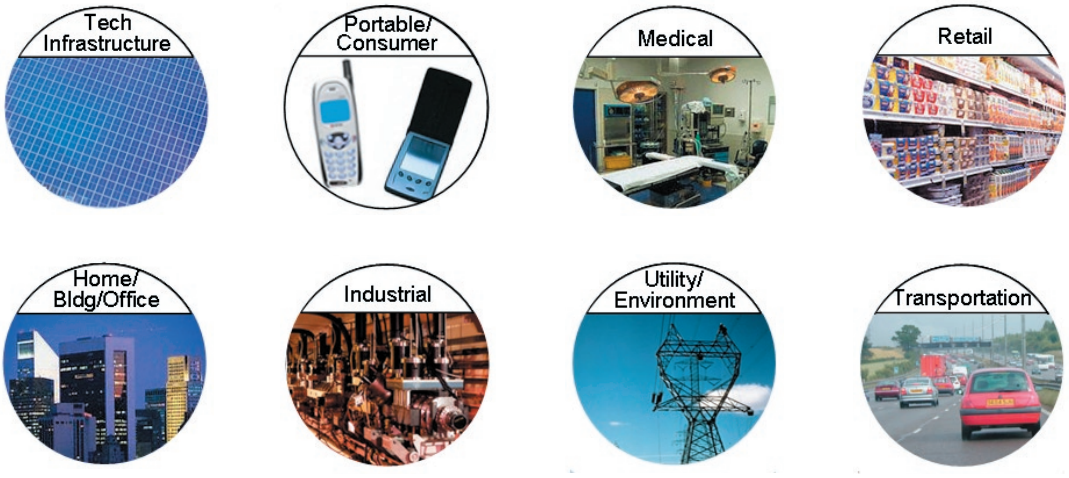
M2M is about interactions that can take place between people and their products. A person can gain data and insight about the status of a device; its location, health, fluid or consumable levels; its temperature, maintenance history, and productivity levels. Devices can also be connected to other devices to share content such as music, alerts, and supply chain information, making for a seamless and automated flow of data and services.

M2M communications can exist in practically any environment and market. [Exhibit B] Currently, successful implementations exist for cell towers, oil and gas pipelines, jukeboxes, vending machines, vehicles, security systems, electric metering, game systems, home appliances, and more. These implementations are yielding significant results. As more devices become networked and enabled, M2M adoption will increase exponentially and have many unseen impacts on our daily lives.

How Is The M2M-Era Different From The PC-Era?

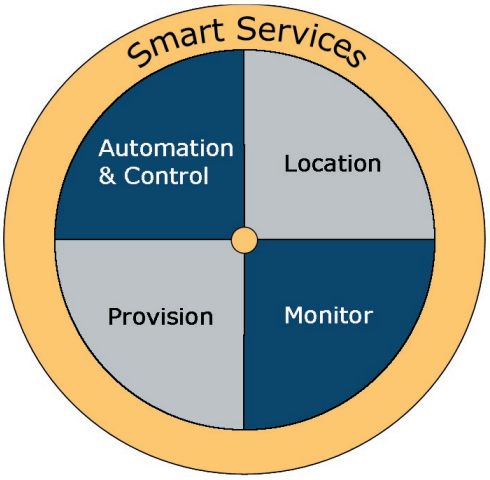
The PC and Information Appliance eras have focused on making people more productive in the office and field. The technology has largely been built to support *people* interacting with other people. Much of the technology was focused on enabling powerful, high bandwidth, always-on computing and communications. The M2M era will be very different. M2M communications will be driven more by *devices* interacting with people and other devices. The technology solutions will require device-specific applications, with less bandwidth requirements than what PC users demand.

Exhibit B: M2M Markets of Influence



The M2M era will be more about the services and applications a device can deliver than about the complete features and functions a device may possess. For instance, consumers will be more interested in the services (remote access, ongoing monitoring and maintenance, etc.) related to a device than in the specific componentry (processors speed, memory, etc.) a device may have. [Exhibit C] This will create an environment where the non-technical person will be able to use and interact with a device seamlessly, with little knowledge of technology and computing. M2M will cultivate an environment where content and services are delivered automatically and specifically to a user with little human intervention and manipulation.

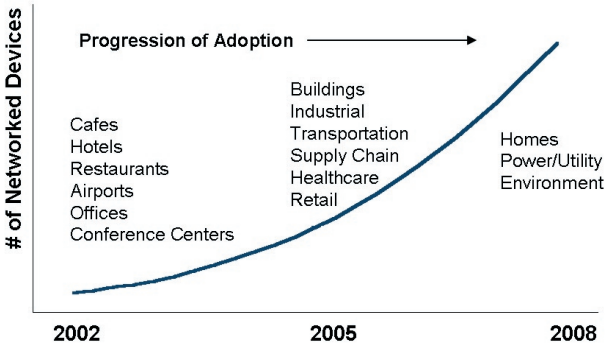
Exhibit C: M2M Services Wheel



Why Is M2M Happening?

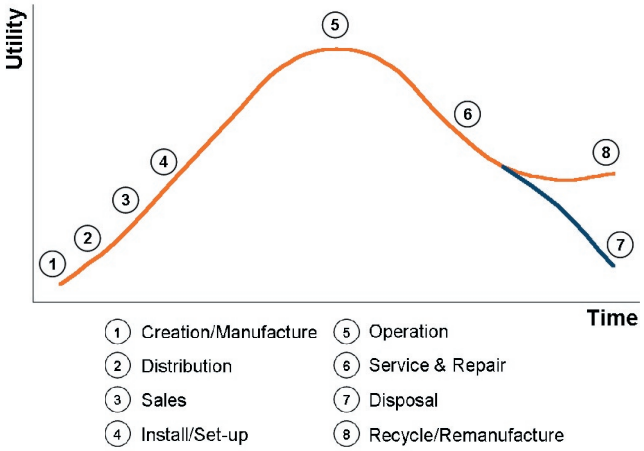
The communications infrastructure, particularly for wireless, has evolved significantly over the past couple of years. The popularity of the Internet and e-mail has caused many to invest in options that will provide anywhere, anytime connectivity. While most of these networks were built to connect phones, PDAs, and other information appliances, ordinary devices and machines will benefit from this available technology as well. Additionally, widespread coverage and faster transmission rates for existing wireless options, coupled with low installation costs, will further drive rapid growth of the number of devices able to connect to an available network.

Exhibit D: Growth of Networks



M2M is also leading to significant opportunities for those involved. Companies can now service devices like never before. With the ability to tap into a device's data stream on an ongoing basis, companies are able to track and service a device throughout its entire lifecycle; from the assembly line to the recycling heap. This is leading to a redefinition of customer relationships and business operations. [Exhibit E]

Exhibit E: Technology Lifecycle



Companies can ensure better and more appropriate service to customers by anticipating and responding to problems as they arise (or even before). Companies are reducing their costs by upgrading software and features of their devices remotely, by sending out repair or re-supply personnel only when needed, and by automating the supply chain. And some of the most innovative companies have discovered new revenue-generating opportunities by connecting to their devices. In all, M2M has the potential to unleash significant productivity gains and economic growth unlike any previous technology wave.

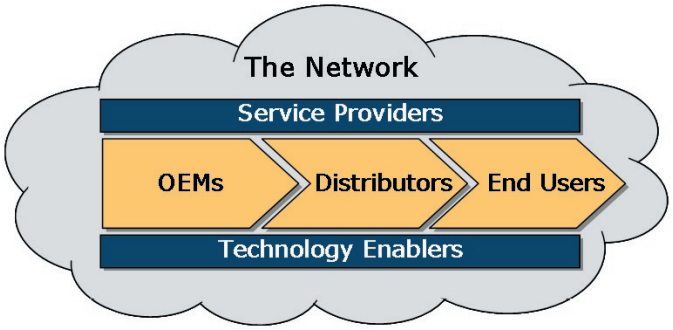
What Are The Stakes?

The stakes in this new era are enormous. Some estimate that nearly 50 billion devices around the world would benefit from M2M communications. That is nearly 10 times the number of people on Earth. Given the scale and scope of M2M opportunities, companies are beginning to position themselves for wide-scale adoption. [Exhibit F]

Beyond the opportunities that will stem from new product sales, companies are looking to capitalize on the benefits of being able to own the customer relationship over an extended period of time. By tracking a device throughout its lifetime, typically 5-20 years for the kinds of devices that are enabled, a company can gain a great deal of data and insight not only into its product's performance in different scenarios and stages, but also into the customer's needs and behaviors. This intelligence can yield optimized services and solutions for customers and profit gains for the companies involved.

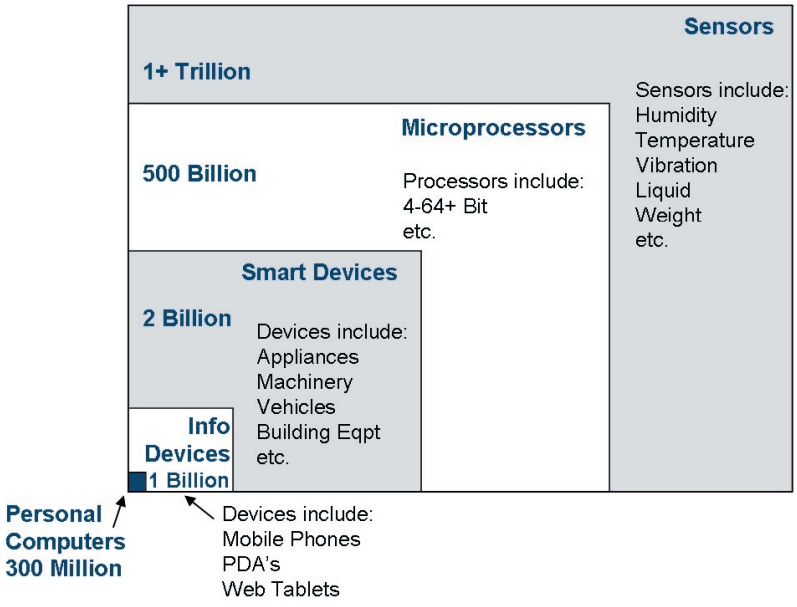
A number of different players who have much to gain and/or lose will be involved. [Exhibit G] First, the technology suppliers have been beset by anemic growth over the past two years. As the Internet bubble burst and as companies have tightened their belt on capital expenditures, technology suppliers have suffered. Many of these suppliers see the M2M wave as being the next large area for corporate investment, and those who have survived the bubble years could gain tremendously by selling the chips, software, servers, and services that will keep the M2M world running.

Exhibit G: M2M Players



Second, device manufacturers and service providers will profit from the new-found ability to keep devices up and running and to attend to customer needs in a highly competitive market. Third, end customers will benefit from knowing that their products and devices are always accessible and always operating. This will allow consumers to be completely mobile and to gain greater control over their environment.

Exhibit F: M2M Will Extend to an Enormous Device Population



When Will It Happen?

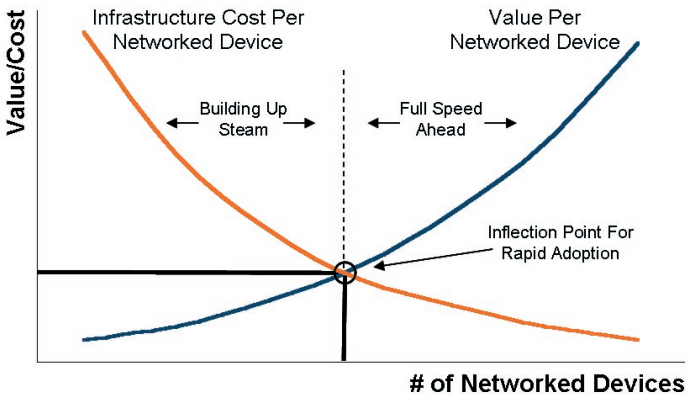
There is an undeniable movement toward using device networking technologies and M2M communications across numerous environments. However, there are optimal conditions under which the opportunity will more rapidly occur, and most notably include:

- Simple and seamless connectivity
- Embedded intelligence within devices
- Affordable and effective service models

Furthermore, with each additional device that is networked, the incremental value of the network, and hence, the device increases. This impact, also known as Metcalfe's Law, heavily favors the networking of a device once the initial cost outlay has been made for the communications infrastructure. As we have seen, connected devices are already beginning to benefit from networks already established. Thus, we are at the point where a device's value becomes increasingly tied to its networkability. [Exhibit H]

Within the next 18-24 months, M2M applications will go from being isolated examples to being mainstream and commonplace. As the communications infrastructure, enabled devices, and business models collaborate to convincingly solve real business problems, M2M will be unleashed on the economy, creating truly significant benefits and opportunities.

Exhibit H: Networked Device Valuation



The FocalPoint Group

Our Mission:

The FocalPoint Group is committed to providing market intelligence and support to the suppliers and beneficiaries of the M2M arena. Our research includes the analysis of adoption trends and market innovations that help to direct investment, product development, marketing, and communications activities. Through our objective assessment of the M2M space we identify underlying problems and the potential solutions that will ultimately accelerate the rate of M2M adoption. Additionally, we will serve as representatives for the M2M opportunity and will work with experts, technology enablers, incorporators, end users, and the media to create an informed and active community of interest.

Our Services:

The FocalPoint Group is a valued resource for the M2M arena, providing the following services:

- *Market research and publications*
- *Surveys and focus groups*
- *Expert commentary and education*
- *Strategic advisory services*
- *Alliance formation and management*
- *Community development*

To learn more about FocalPoint offerings, contact:

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The FocalPoint Group was formed by industry analysts who realized the potential of the M2M arena. Located in San Francisco, the team has worked with many of the leading suppliers and incorporators in the space, looking at how device networking technologies and solutions are being implemented across diverse market environments.