

## M2M and the App Platform Frontier

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Summary: M2M device networks provide a service in the same purpose built way as mobile apps. Connected cars and connected homes already have rich capabilities powered by the data and enterprise services with which they integrate. API's are the most accessible and secure means of providing this integration.

Facebook's billion dollar acquisition of Instagram continues to make headlines long after it was announced. Although it is undoubtedly an outlier, the price tag underlines just how valuable a simple, practical mobile app can be. Contrast this event with the fate of Eastman Kodak, and it is clear how disruptive and necessary digitization can be to every line of business. Beyond the traditional world of information technology and the burgeoning world of mobile, digitization of data is coming to every industry through "machine-to-machine" (M2M) communication. M2M leverages recent innovations in micro-computing and wireless technology that allow embedded devices to distribute real-time data, thus creating a vast "internet of things". There are smart meters in energy and utilities (the "smart grid"), connected vehicles in automotive and logistics, heart monitors in healthcare, RFID-tagged inventory in retail and manufacturing, and digital signage in media and communications. To support these innovative opportunities, telecommunications companies have taken the lead in building M2M networks that deliver the granular device data to centralized applications that turn it into meaningful information. Although the space has been named "machine-to-machine", the true benefit comes from this connection of data to analysis, and these telcos recognize the opportunity to offer this high value service above the pipe.

### The M2M App Platform

There is an analogy between Instagram and the M2M world that goes beyond the camera being a formerly-isolated-analog-now-connected-digital device. The mobile app paradigm consists of the same three logical components as the M2M paradigm: an interactive device to digitize the data, a network to deliver the data, and a computing centre to digest the data. There are some subtle differences, however. Whereas the mobile world groups the network and computing centre together and calls it "the cloud", M2M has a tighter coupling between interactive device and network, as the more limited capabilities of the embedded device necessitates more intelligence in the network. Nevertheless, the combined M2M network offers a similar platform for business services as a smart phone or tablet. This is easy to see when observing the latest connected car dashboard features, but less obvious when thinking about a collection of healthcare devices monitoring a single patient. Smart grid offers a perfect example of how an M2M network can be utilized as an app platform. As a first step, many energy and utility companies are simply uplifting their current business processes as they introduce smart meters. However, the true payoff only comes when the full capabilities of the new technology are exploited. Recently, I worked with an energy distribution company who had moved into the second phase of their smart grid program. After "smartening" their meter data collection and servicing infrastructure, they began looking for opportunities to leverage the new technologies for unique services. Their resulting list includes an energy consumption dashboard for consumers and CSR's, a home-based control centre, an energy optimizer, and a smartphone-based remote control. All of these services are synonymous with the scope and user experience of mobile apps, and in the remote control instance, there truly will be an app for that.

## **API's are the Foundation for the M2M App Platform**

The critical link between the M2M network and the core enterprise systems is the API, a standards-based interface that allows real-time data exchange. Here again, M2M parallels mobile apps in popularizing protocols such as HTTP for transport, REST for bindings, and XML and JSON for data. In fact, there is a significant advantage for companies to use common API's for their M2M and mobile app integration. Integration of mobile apps into the enterprise has already paved the way for real time interfaces that are lightweight, high scale and continuously available, all characteristics that are fundamental for M2M communication. By re-using or adapting these API's, M2M network providers and subscribers can minimize their onboarding time and gain economies of scale. Synchronizing the API protocols between M2M and mobile apps offers further potential for telcos who can enrich their M2M offerings with additional services. One operator I have worked with is utilizing their location API to provide geo-fencing for high value construction vehicles, and their SMS and MMS API's for messaging in a number of vertical M2M contexts. The more capability that is made available through API's, the more easily companies can advance device digitization and cross-connect the data with other areas of their information technology.

## **How M2M Can Rapidly Adopt API's**

Many companies have already begun to expose API's that can be used in the context of M2M. These API's may need to be tuned further in order to minimize the data payloads, adapt the formats to fit the particulars of the connected devices, or include security policies that fit the profile of the data being exchanged. A media and communications company I am working with is implementing OAuth as the security protocol to control access to their API's from set-top boxes, gaming consoles, and mobile devices. They are able to do this very quickly without compromising their service levels by utilizing an API Proxy in their architecture. The API Proxy is able to translate from the M2M-friendly language of OAuth to the proprietary protocols they use inside their enterprise identity and access management systems. Furthermore, the API Proxy provides data filtering and transformation, transport protocol conversion, and traffic metering, all key capabilities that add value in M2M communication. The energy distributor implementing smart grid uses the API Proxy to adapt their inbound meter data to feed enterprise applications through existing Web service interfaces. Utilizing an API Proxy as a bridge between the M2M network and the API's of the subscriber and provider is a reliable way to realize maximum value from the M2M platform as quickly as possible.

The M2M movement represents a significant shift for a number of industries. Connecting and digitizing data from disparate devices will be as disruptive to these industries as it was to photography. The good news is that the foundational elements to M2M integration—data and application services that can be linked through API's—exist in the enterprise. Not every company will win the lottery like Instagram, but by creating an M2M app platform enabled by API's, companies have the opportunity to shake their markets like a Polaroid picture.

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