



What will It Take for the Hospitality Sector to Embrace the Internet of Things?

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Perhaps geeky but hugely important – a few months ago I presented at [JavaOne](#) on building Internet of Things applications with Java ME Embedded.

NB: This is a viewpoint from Artyom Astafurov, chief innovation officer at [DataArt](#).

One of the goals of my presentation was to discuss the ways of bringing the fun and creativity back into the development process for [machine-to-machine](#) (M2M) solutions.

Although not limited to the hospitality industry, I want to share some nuggets I discussed at JavaOne, and highlight a few opportunities for hoteliers to leverage the next generation of M2M tools.

What's the hold up for hospitality?

My colleague, Greg Abbott, senior vice president travel and hospitality at DataArt, outlined some of the issues for the hospitality industry:

- Machine-to-Machine technology is already taking flight for a number of large hotel chains and luxury brands.
- Larger chains have the in-house technical tools or resources to leverage M2M, and have already been upgrading guest experiences with it.
- Sensors are being built into mini bars for auto-billing, alerting of the need for refills, or have seen climate control options highlighted through your phone.
- M2M is creating new experiences for guests from unlocking the guestroom with a mobile app that acts as your key, to controlling the blinds, but there are a few technical road blocks for other parts of the industry to take hold.

However, in my opinion, the hospitality industry has a way to go to catch up with the Internet of Things.

M2M development can seem very labor intensive from the outsider's perspective, as it involves the lengthy development of messaging protocol, cloud servers, and design and development on the communication side.

Without the knowledge and IT resources, developing the in-depth plumbing for M2M stops many technology vendors and startups from attempting to foster creativity and innovation for guests.

Coupled with the increase in the adoption of smart devices, volumes of data and the ongoing need to reduce costs, development at stage one can seem daunting with more platforms adding to the complexity of merging hardware with software.

The real deal for M2M and hospitality

During the event, Oracle announced the release of [Java ME Embedded 3.4 platform](#), which is helping partners with the development of Internet of Things (IoT) solutions.

It brings together leading elements from embedded Java running on sensors and devices to innovative smart gateways that bring middleware out to the edge for developments.

I presented the opportunities that this new platform provides for the industry, which include creating less fragmented solutions and portable code for partner technologies, such as M2M applications that use an open-source cloud-based M2M communication framework.

The framework provides a layer of communication for the queuing and delivering of commands between applications and embedded systems, with a customizable API making it accessible for a wide community of developers and startups.

An example of one such framework is [DeviceHive](#) (more on that later).

M2M development is on the rise, with substantial investments in resources being allocated to boost this space. The main players in this market are chip manufacturers and telecommunication companies who use wireless data access.

Software developers play a major role here, too. This sector has seen a new market and the number of custom software development companies working on it has increased considerably as well.

One of the main challenges holding up M2M development for a number of industries, including travel, is the lack of integration.

The people taking care of micro control, sensor control, cloud computing, data storing, modifications and other applications need to somehow work together.

The parties involved in the process are applying the “to each their own” rule. Currently there is no standardization, and everyone is trying to develop projects according to their own metrics and methodologies.

The parties involved often face the question of how to connect the pieces that are part of the system and devices.

This often needs to be done from scratch due to lack of common infrastructure, so there is a need for different angles in this arena and further consensus needs to be achieved.

Moving forward

There are a few solutions available right now helping to create an even playing field, such as DeviceHive, [Numerex](#), [ThingSpeak](#), and [Xivley](#).

For example, DeviceHive’s technology turns devices into accessible objects with RESTful interface to enable the building of unique smart device applications and control them over the internet.

It creates two-way communication with remote devices using the cloud as a middleware, which then enables devices to be connected to anything.

With solutions like DeviceHive, travel vendors and small chains are open to developing client applications using HTML5/JavaScript, iOS and Android libraries and integrate them with embedded devices via cloud, without scrambling with complicated infrastructure.

Hospitality technology vendors are ready to use smart devices to improve guest experience – they just need a little help getting started.

By uniting the industry with open software and taking out the need for extensive back end infrastructure build, the industry can quickly release new M2M solutions, create higher ease of use for consumers and enhance experiences for all levels of travelers.