

T. H. E. SOLUTION LLC

Taming the Development of Intelligent Products

Connecting Smart Device's on the Internet, The Business Case

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INTRODUCTION

The quote that by 200x there will be more smart devices on the internet than people has become widely accepted (and hyped) within the technical world. Is there really a business case? If so how and when should a manufacture of smart devices respond? These are the questions this article will answer.

BUISNESS CASE

Connecting smart products is not valuable on its own. It adds potential value by enabling new functionality in the product. From the perspective that counts, the customer's, additional functionality in a product is worthwhile if:

1. It saves them money and/or time, increases their revenue or opens new uses.
2. The value provided by 1 significantly exceeds any additional costs.

Are there connectivity enabled applications that meet this criteria? The answer is yes, lots of them. Some of the potentially more valuable applications for industrial/commercial devices include:

1. The ability to tie key factory floor machines into an enterprise's supply chain management software. Bill Kernodle of Clemson University states that the ability to access key production machine information can "... reduce stock outs, wait times, and inventories by 90 percent for traditional supply chains by getting total asset visibility and by making decisions in daily time intervals rather than weekly...".
2. Crucial remote support operations can provide great value to your customers and possibly new revenue streams to the manufacturer. High value operations include automated content updating, inventory control and performance optimization. The potential exists to provide remote near real-time performance optimization for entire manufacturing lines using modeling software, such as Flexsim, that connects with key factory floor machines. Even in less sophisticated environments there is often significant value in product optimization based on trending information automatically collected and Emailed to manufactures for analysis.
3. Smart devices can often be converted to near or completely unattended operation when the ability for fault detection is coupled with remote updating and troubleshooting capabilities. This potentially opens significant new market niches

that were previously prohibited because of high on site support requirements and has the potential to significantly lower maintenance costs in current niches.

If the information provided by a device, such as the state of the world around it, is more valuable than the device itself you have a strong candidate. Think about it. What difference would the capability to remotely communicate to your device by a human or another machine make to the perceived value of the device? Does this mean that all devices should be connected? No, in spite of the hype the Internet connected toaster makes no business sense.

WHEN AND HOW

If connecting a smart device can create substantial customer value and you do not do it, your competitors will. So the questions in many cases is not when should I do it but how should I do it? Answering this question is highly dependent on a myriad of factors. Some of the more important are: the value of the enabled function(s), operation and communications characteristics and with whom (or what) the product will connect. It is a given that we are moving device specific data using a reliable but unsecured transport, TCP/IP. But all that TCP/IP provides is the transport of “stuff”, any stuff. What we need above this is a means for our software to access TCP/IP and the structuring of how and what is being transported. The possible solution set is not small and ranges from highly proprietary to highly standardized. More detail on the technical options is provided at <http://www.the-solution-llc.com/techopt.pdf>. The bottom line is that given a set of characteristics, there already exists technical solutions that will meet them, even on fairly modest platforms

If your devices have not connected and your industry has not connected, you and your customers will probably not know what is important. How do you proceed without betting the company? Conceptual presentations, no matter what form short of very sophisticated virtual reality, are typically useless when faced with trying to fathom something fundamentally new. People can not tell how they will react to something new until they touch it and play with it. So if you have time follow these steps:

1. Identify the potentially highest value connectivity enabled functions.
2. Make a **working** prototype(s) that includes at least the core functions identified in step 1. Carefully assess the prototype’s perceived value with both internal and external audiences. An offloading approach (see <http://www.the-solution-llc.com/strategy.zip> for an example) can often enable even “legacy” devices to perform as good prototypes.
3. Rework the prototype until your assessments indicate that you have the basic functions and their technical parameters nailed.
4. Develop the first production release device based on 3 as quickly as you can.
5. Run like hell continually improving and expanding the device. Once Pandora’s box is open, change will come quick.