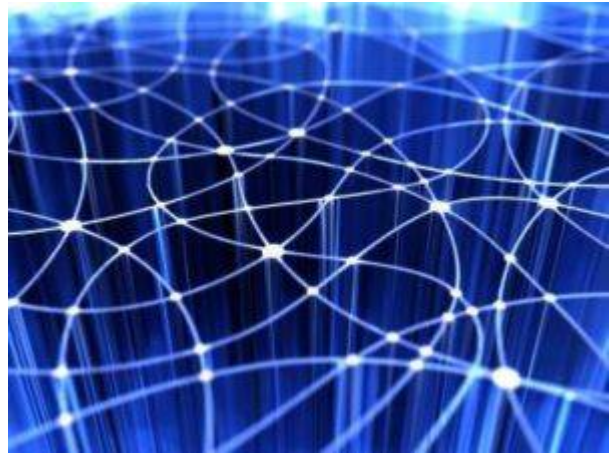


Internet of Things: Not Just a Collection of Networks

BY LUIGI DE BERNARDINI | WED FEB 19 2014

Imagine getting an email, text or Facebook message notifying you that you have been tagged in a Facebook post by the packaging line that will be holding an event next Saturday called “Control electric axes for excessive waste.” The message also notes that the compressor room identifying “preventive lubrication” and the oven identifying “thermoregulation check” will join the packaging line event. At the end of the message is a question asking: Will you participate?



Science fiction? Or the type of message you should expect to get in the months ahead?

This type of interconnectedness between machines, systems, and people is what the Internet of Things (IoT) is all about. And along with Big Data and the Cloud, IoT is among the so-called megatrends that are on everyone's lips. As often happens in these cases, people love to talk about such trends because they are synonymous with competence. Unfortunately, many of the “things” discussed are inappropriately categorized as “Internet of Things.” I've heard several conference speakers discussing such things as fieldbus sensors with a communication port and equipment supporting a serial communication protocol as being *the* Internet of Things. But that's like saying an enterprise storage server is a cloud solution.

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Let's start with the basic technology that is at the core of the Internet of Things, namely the Internet. The Internet has features that set it apart from all other forms of communication. By definition, the Internet is a set of interconnected communications networks—without central governance—that connects globally distributed computers and devices. It is the Internet's vastness of interconnections and lack of governance that differentiates it from any other individual network. So when we talk about Internet of Things, especially in an area such as manufacturing that needs to be more conservative and controlled, we have to keep in mind how different IoT and the Internet are unless we want to lose the real innovation potential behind IoT.

The Internet of Things can introduce a deep revolution in the organization and management of a manufacturing environment. Consider that, with IoT, different devices linked together in different networks and fields can communicate and transfer information among themselves and interact with their users. All this can give rise to highly innovative behavior that, a short time ago, was hardly imaginable. This concept is further amplified if you consider the social component of IoT. Think of a network of devices that can interact not only with each other, but also on the social network of an operator, engineer or manager.

This is already happening with some consumer devices, e.g., lamps capable of communicating with each other and reacting to social network signals, such as changing color or lighting levels in response to a tweet with a specific hashtag. Such capabilities can easily be extended to industrial devices.

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devices or systems be able to communicate with them on the same network. It is not difficult to design a system that creates a message on any network that would require operator intervention when a process signal reaches a specific value or upon the occurrence of a specific condition. This message could also be received at the same time by different devices, operating on different networks, which will help to draw the attention of the operator through, say, a change in lighting, a report on a machine's HMI screen, a message sent to a wristwatch, or to Google Glass.

What I want to stress here is that the Internet of Things can be a true revolution for industry, but should not be confused with our common industrial networks that are increasingly evolvable, but not revolutionary in and of themselves.

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