

PTC Takes a Fresh Look at the World of Things

CIMdata Commentary

Key takeaways:

- *PTC has invested hundreds of millions of dollars in IoT and this event showcased their progress in supporting real-world use cases*
- *The Thing Event highlighted the potential for companies in a range of industries to use big data/analytics powered by IoT and augmented reality to deliver innovative user experiences that bring product and lifecycle knowledge to the point of work where it is needed most*
- *Augmented reality allows people to use both physical and digital representations of their products, changing the way they can leverage all the information embedded in designs*
- *PTC is introducing several new strategic offerings to support IoT based applications including ThingBuilder to author IoT applications, VuMarks to identify products in the field, and ThingX to facilitate Web access to rich 3D augmented reality*

CIMdata attended PTC's Thing Event held on 28 January 2016 in Boston, MA USA (www.ThingEvent.com). The event consisted of a live telecast followed by a question and answer session with PTC executives and a reception for attendees to visit and talk with companies that were demonstrating new augmented reality solutions built using PTC offerings. Attendees included press, media, industry analysts, consultants, and customers. During the telecast, PTC stated that over 14,000 people from over 130 countries registered to watch the event which was streamed live.

PTC President and CEO, Jim Heppelmann provided the opening remarks and set the stage for the event. He described how products were evolving from mechanical devices to smart, connected devices, to systems, and now to systems of systems working across the Internet of Things (IoT). According to Mr. Heppelmann, products now exist in the physical and the digital world at the same time and this is transforming the nature of work. Companies need new ways to design and produce these new solutions, to create systems of systems, and rethink how things are manufactured, used, and serviced.

Mr. Heppelmann stated that IoT is the defining technology of this era and that PTC has spent \$700 million on IoT and related technologies to transform PTC's technology platforms and align with these changes.

He said that "Seeing" is the new theme impacting engineering, creating, and collaborating. He showed a very interesting example of augmented reality (AR) in which an individual could project virtual dials and gauges that replaced the classic physical dashboard in a vehicle. Using this approach, companies could simplify the physical product itself with no more need for electronics and wire harnesses and eliminating the current physical dials and displays. Other examples involved overlaying the virtual product design on top of the physical item, creating a digital twin that allows deep exploration of product-related information, such as viewing disassembly instructions.

Mr. Heppelmann believes that these augmented (and mixed) reality capabilities will provide revolutionary user experiences and change how companies must design, produce, and service the products of the future. This is a vision shared by CIMdata. Mr. Heppelmann stated

with all these new capabilities that it was “time to step back and take a fresh look at things” and this adage is PTC’s new corporate vision.

Mr. Heppelmann announced two new solutions upon which PTC will build their AR capabilities: VuMark and ThingX. With the potential for thousands or millions of IoT-enabled devices, how will companies distinguish those products in the field? VuMarks are targets you put on a device—somewhat like QR codes—that identify the particular device and its spatial orientation so that an AR solution can align the virtual with the physical device. VuMarks may contain information such as serial number, build date, and other attributes, but also position and other pertinent data. Rather than a bar code to discover product information, manufacturers can create their own unique VuMark markers for each device. A VuMark can consist of a symbol or logo that surrounded by shapes that are used to communicate information. PTC is creating an Adobe Illustrator process to help companies build VuMarks.

ThingX is a suite of capabilities that will help companies develop AR-driven solutions to create the “Thing Experience.” Components of ThingX include:

- Thing Markup Language (TML)—an extension of HTML5 for working with 3D data
- ThingBrowser—can work with both TML and HTML5 and pulls together who, where, and what to determine available apps for that specific thing
- ThingServer—serves up content, i.e., “experiences” for a particular thing, driven in part by VuMarks
- ThingBuilder—tools to help developers create apps such as service instructions that are facilitated by AR

One of the objectives of ThingX is to dramatically reduce the number of apps needed to support all the potential methods that could be built to support various ThingWorks use cases. Rather than having many different individually purpose-built apps, companies can have a single app for all products and functions.

The ThingBrowser looks at a VuMark and provides users with the proper capabilities based on the context of that object and content in the VuMark, i.e., who, what, where, etc. Mr. Heppelmann stated that PTC expects that the new browser will be freely distributed. CIMdata believes this will encourage more rapid adoption of PTC’s AR capabilities, and that opening up the VuMark definition will spur further, rapid growth.

The ThingBuilder is an AR experience builder. Mr. Heppelmann described ThingBuilder as “authoring for AR.” Its purpose is to move beyond having to hand-build apps for every use case. The model provides the data context—the models and all their related information—to provide an ability to “see” information in the digital twin.

CIMdata was very impressed with the new technologies and solutions that PTC presented at the Thing Event, along with their overall strategy based on these offerings. The Thing Event highlighted the potential for companies in a range of industries to use big data/analytics powered by IoT and AR to deliver innovative user experiences that bring product and lifecycle knowledge to the point of work where it is needed most. While their enterprise aspirations are audacious, PTC now has the solution portfolio in place to help their industrial companies change the game in their product markets.

About CIMdata

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