IDC TECHNOLOGY SPOTLIGHT

Finding Value in Your IoT Data

June 2017

A major goal of the Internet of Things (IoT) is to take advantage of the insights available from the continuous collection and analysis of sensor data and respond to those insights to drive business value. Indeed, enterprise decision makers see data management and analytics as the top area of investment for their IoT projects. Therefore, organizations must prepare to invest in analytics tools that can help them interpret, act on, and learn from the valuable information hidden in their IoT data. This Technology Spotlight examines the need for such tools and looks at the role played by Tridium and its Niagara Analytics 2.0 solution in the marketplace for IoT analytics solutions.

Introduction

The IoT is increasingly acknowledged as a key enabler of organizations' digital transformation. Organizations are looking for ways to drive efficiencies, increase productivity, and rationalize business processes through understanding the behaviors of their fixed assets, endpoints, and infrastructure.

The IoT was originally a market focused on how many "things" will be connected within a specific time frame. IDC defines the IoT as a "network of uniquely identifiable endpoints [or 'things'] that communicate bidirectionally without human interaction using IP connectivity." While it's interesting to think about the possibilities — IDC expects that more than 80 billion "things" will be connected by 2025 — the conversation is shifting as organizations look to realize the value of the data that is procured from all these connected things.

Many IoT investment decisions are made by decision makers looking to digitally transform aspects of their business. They realize that with more information at their disposal, they can make better decisions. However, the challenge is determining which data is valuable and which data is irrelevant. It becomes increasingly important to have the correct tools on hand to provide that capability. One trend we see in the IoT market today is that enterprise technology buyers are not as worried about the devices and connected hardware; instead, they are more concerned with the data that is created and interpreting the data via analytics software. The focus is shifting from the hardware that will connect the IoT to the analytics software that will help turn vast amounts of data into meaningful information from which to make business decisions. IDC's 2016 *Global IoT Decision Maker Survey* supports this notion. Enterprise decision makers see data management and analytics as the top area of investment for their IoT projects. They recognize that the relationships between the data via data models and metadata definitions are critical to ensuring that analytics tools make sense. The data models visualize the linkages between inputs and outputs of data between endpoints and the cloud.

To find the best tool, organizations need to understand the types of data being generated and look at the information technology (IT) and operations technology (OT) groups to ensure seamless integration with existing systems. While the ideation and initial proof of concepts often originate within the business units, the IT and OT groups play an important role in the success of any IoT project. Both groups must be brought into the planning and implementation, especially as the project looks to scale and deliver true enterprise value. These groups also play an important role in determining how to access and display the data in a way that business decision makers can easily consume, interpret, and act upon. In addition, they can help point out the best partners to deliver solutions that offer robust data analytics capabilities.

However, the IT and OT groups often have differing priorities. IT is focused on the enterprise technology that supports the organization's corporate networks, computing assets, security, and associated infrastructure; OT is focused on the technology that supports the operations of a facility or plant and the associated industrial control systems and SCADA systems, for example. Both groups see the importance of maintaining, managing, and securing their data but do not necessarily see the importance of cross-pollinating the data to provide deeper insights for the business decision makers looking to transform the business.

As the IoT sees data being generated in industrial scenarios, it becomes increasingly important to have IT and OT on the same page so that the data is accessible to designated decision makers in a fast, reliable, and secure manner.

Benefits

To take the data generated by connected "things" and turn it into meaningful information, organizations must employ analytics tools to aggregate, sort, and display the data visually so that decision makers can consume it and act. The benefits provided by an analytics tool and the information it procures include:

■ **Helping rationalize investments.** By understanding how certain assets or processes are performing, such a tool provides metrics and justification to invest in new or additional capabilities to improve current processes or applications.

■ **Enabling predictive maintenance.** Using analytics tools gives organizations the chance to understand when their assets are performing per specification or when they may be underperforming. With this information, proactive action can be taken to fix or adjust the asset immediately, thus limiting downtime.

■ **Offering actionable insights.** With connected endpoints, a significant amount of data can be collected. However, it is not organized in a fashion that is easily digestible and can translate readily to action. With an analytics tool, the data is turned into meaningful information that provides insights and highlights areas where preventive or proactive action should be taken.

■ **Making jobs easier.** In many industries, including building management and manufacturing, analytics tools provide rich, easily consumable data, which can make jobs easier and improve efficiency because workers have access to information that otherwise would have been difficult to obtain.

In IDC's 2016 *Global IoT Decision Maker Survey*, respondents indicated how they are using analytics to help their organizations. Generating insights, improving processes, and predictive maintenance are all areas where companies are finding that analytics is helping transform their business, as shown in Figure 1.

FIGURE 1

Key Areas in Which IoT Analytics Helps Organizations

Q.   How is your organization using analytics?
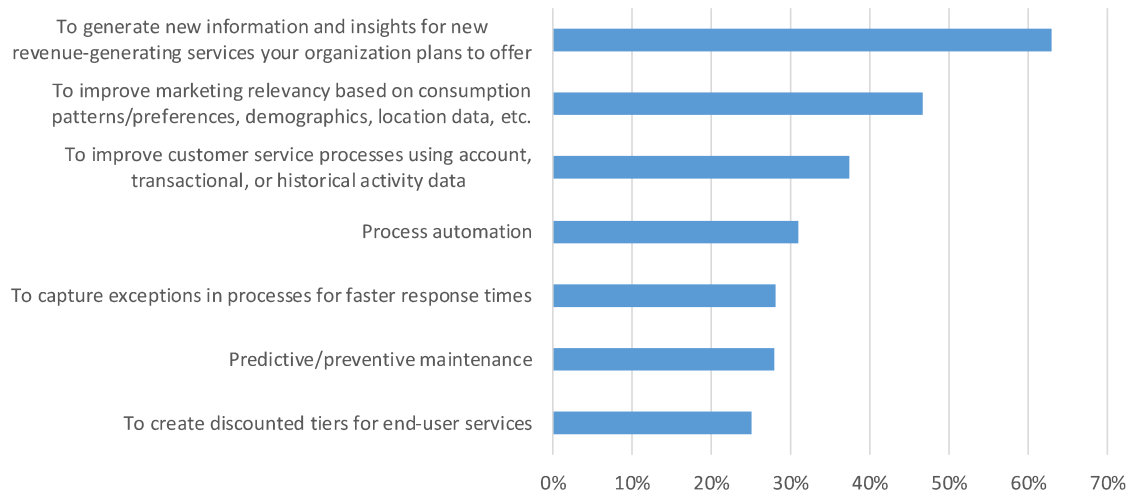
n = 2,145

Source: IDC's *Global IoT Decision Maker Survey*, 2016

What to Look for in an IoT Analytics Solution

Determining what to look for in an IoT analytics solution can be a daunting task. IDC has prepared the following list of considerations for any organization that is investigating options for an IoT analytics tool. Characteristics and questions to consider include:

- **Open platform.** Is the tool capable of integrating with existing organizational systems or with third-party applications? Does the tool offer open APIs?

- **Role-based insights.** Can the tool provide different users with customized views that offer role-based insight? Can certain information be viewed by a specific role(s)?

- **Real-time reporting.** Does the tool have a reporting function that can provide real-time reporting? Does the tool allow real-time creation of user-defined reports and queries?

- **Integration with other back-end applications.** Does the tool come with the functionality to integrate with existing back-end applications? Is the analytics tool an add-on to a larger software package your organization is already using?

- **Security.** Does the tool address the cybersecurity concerns and requirements of your organization? Does the tool, and the associated vendor, have the necessary security certifications to guarantee the integrity of your data?

- **On-premise versus cloud-based offering.** Does the tool offer the option to operate on your premises — on equipment or critical devices in a physical building, for example — or in the cloud?

- **Simplicity.** Is the tool easy to interact with? Is there an engaging user interface? Are users able to build their own dashboard views? Can users dynamically change views quickly and easily? Must users be familiar with programming languages, or can nonprogrammers use the tool?

Considering Tridium's Niagara Analytics 2.0

Tridium's Niagara Analytics 2.0 is built upon the open software platform, Niagara Framework. It allows users to locally take real-time data or conduct data analysis on historical information to better inform both immediate and longer-term operational decisions. Niagara Analytics 2.0 is a value-add offering to the Niagara platform.

Niagara Analytics 2.0 includes the following features:

■ **Preexisting analytics data model.** Because Niagara Analytics 2.0 is based on Niagara 4, the data model is already designed, thus allowing users to build data views. It also leverages Niagara 4 tagging and hierarchies, including Niagara 4 dictionaries such as Haystack.

■ **Real-time, on-premise control.** Niagara Analytics 2.0 can be deployed directly on embedded controllers such as the JACE 8000, thus enabling real-time reactions to situations and immediate action to offer quick resolution. It also allows real-time energy optimization.

■ **Algorithms library.** The tool comes equipped with predefined algorithms that can be customized to a specific project. Niagara Analytics 2.0 provides more than 40 functional blocks to help design customized algorithms. It also allows analysis into a single piece of equipment, groups of equipment, or all equipment within your organization, and it allows repeatable use of these analyses.

■ **Intuitive user interface.** Niagara Analytics 2.0 employs a drag-and-drop approach to building algorithms so that even nonprogrammers can build data analysis scenarios easily and efficiently.

■ **Preventive control functionality.** The tool can be programmed to allow advanced alarming by collecting data from multiple data sources and make preventive decisions based on custom algorithms and reporting on off-normal activities. This feature also allows users to know when equipment needs servicing based on current condition rather than a scheduled future service date.

■ **Dashboarding and visualization.** Niagara Analytics 2.0 allows users to visually display key metrics, alerts, and outputs using standard reports and widgets included in the tool or build customized dashboards and reports to meet current requirements.

Challenges

Organizations must be cognizant of that fact that an analytics platform such as Tridium's will create an abundance of data and information. While the tool can provide the information, organizations must have the skilled resources for reviewing and analyzing the data. Without the right skill sets available to review and act on the information created, organizations won't fully realize the value of an analytics tool.

Another consideration for organizations is making sure there is the capability to easily integrate the tool with existing IT and OT systems so that IoT-collected information can be exchanged and used in other parts of the business. Sharing the data across systems will allow the data to be better utilized and acted upon over the longer term — as well as provide the ability to show trends and irregularities across a broader number of assets and processes.

Conclusion

As organizations seek to digitally transform to keep up with competition, drive efficiencies, or increase revenues, understanding data is of paramount importance. With more and more "things" becoming connected, the volume of data created will only increase. To keep up with the data deluge, and the need to turn that data into meaningful information, organizations must be willing to invest in analytics tools that can help them interpret, act on, and learn from this valuable information. Finding an analytics solution provider that offers user-friendly, dynamic, secure, and scalable tools will help as organizations intelligently move toward digital transformation.