IDC MarketScape: Worldwide IoT Platforms (Software Vendors) 2017 Vendor Assessment

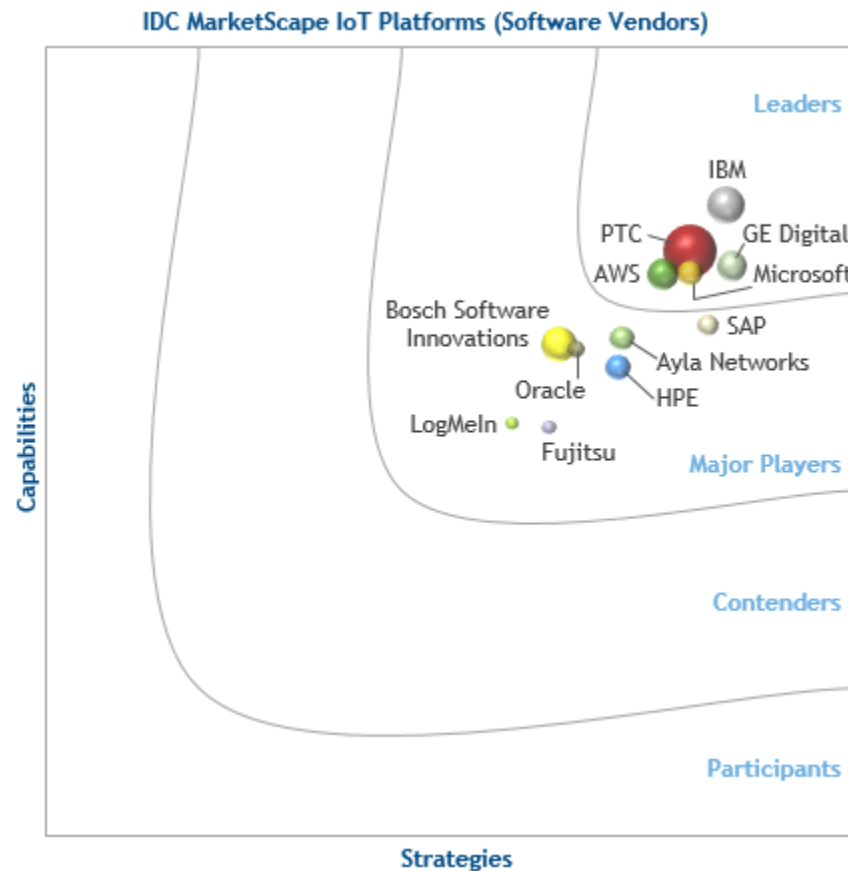Stacy Crook   Carrie MacGillivray

THIS IDC MARKETSCAPE EXCERPT FEATURES: MICROSOFT

IDC MARKETSCAPE FIGURE

FIGURE 1

IDC MarketScape Worldwide IoT Platforms Vendor Assessment

Source: IDC, 2017

Please see the Appendix for detailed methodology, market definition, and scoring criteria.

IN THIS EXCERPT

The content for this excerpt was taken directly from IDC MarketScape: Worldwide IoT Platforms (Software Vendors) 2017 Vendor Assessment (Doc # US42033517). All or parts of the following sections are included in this excerpt: IDC Opinion, IDC MarketScape Vendor Inclusion Criteria, Essential Guidance, Vendor Summary Profile, Appendix and Learn More. Also included is Figure 1.

IDC OPINION

The Internet of Things (IoT) is a natural evolution of the current technological and cultural environment. It will impact almost every industry and country around the world. IoT platforms sit in the middle of this vast ecosystem, providing the middleware between the IoT endpoints and the repositories where the data collected from the endpoints will eventually reside. There are consumer-focused platforms, horizontally focused enterprise platforms, and industry-specific platforms. Because of the many use cases these platforms will serve and the pivotal role they play in enabling the IoT, there are many providers of such products.

In IDC's view, an IoT platform is a commercial software product that offers some combination of the following capabilities (for the full market definition, see the Market Definition section):

- Connect to IoT endpoints
- Manage IoT endpoints/identities
- Ingest and process IoT data
- Visualize and analyze IoT data
- Build IoT applications
- Integrate IoT data into existing applications

Needless to say, the IoT platforms market is complex. The segment studied for this document – horizontally focused commercial platforms – is also fairly immature and rapidly evolving. With this said, there is a high amount of interest in these products from IDC customers; so we looked to find a group of providers whose platforms offered (or would offer) a similar set of capabilities and address a relatively similar group of use cases. The majority of the vendors in this study target – or have near-term plans to target – connected operations and connected products use cases. Some of these vendors fall more squarely into the industrial/connected operations realm and others fall more squarely into the connected products realm – yet others see opportunity across both. When we consider a connected building scenario, for example, it is obvious that there are use cases that cross into both sides of the world.

IDC MARKETSCAPE VENDOR INCLUSION CRITERIA

The IoT platform market is vast and there are many ways in which to segment it. Companies studied for this IDC MarketScape generally hail from an enterprise or industrial software heritage and tend to have strength in IT infrastructure, applications, and analytics. These companies generally (though not all) partner to provide cellular connectivity options. In the coming months, IDC will publish another view of the IoT platform market, studying companies from a communications service provider or network equipment heritage. These companies tend to start with strength in the connectivity layer of the

platform and are in various stages of building additional application enablement services upon that connectivity layer.

Vendors included in this study:

- Had a standalone commercial IoT platform offering in market by December 2016
- Offered horizontally appropriate capabilities and sell into multiple vertical industries
- Provided at least four of the five core IoT platform elements in their offering (Device connectivity capabilities were necessary for consideration.)
- Provided three customer references that ideally had been using the product for six months or more

ADVICE FOR TECHNOLOGY BUYERS

In general, this study rated vendors across a horizontal set of capabilities that would lead to success across various use cases. However, when we analyzed product attributes specifically, we considered some use case-specific characteristics but ensured that these were not more heavily weighted toward one use case or another. For instance, vendors targeting industrial use cases will need to have strong edge capabilities, and those in the connected product realm would be expected to offer mobile application development tools. Overall, we believe technology buyers should look for IoT platform software providers with the attributes discussed in the section that follows.

Key Strategy Measures for Success

- **Product functionality breadth:** IDC evaluated vendors on how comprehensive each offering was across the six core elements of an IoT platform (connectivity management, device management, data ingestion, processing, management, visualization tools, application enablement tools, and analytics). We considered how many of these capabilities were packaged into the core IoT platform offering versus requiring additional purchases on the part of the customer. IDC understands that not all organizations will use all components of functionality; however, we believe customers should evaluate whether a vendor is packaging a product in a way that makes it easy to administer and manage the product – and costs – over the lifetime of the offering.

- **Protocol/device support:** IDC evaluated vendors on the current protocols, device types, and operating system types supported. In the connected product scenario, it is critical to build strong partnerships with IoT endpoint OEMs to help customers get their devices connected to the internet quickly. This is also important in the industrial world, although the integration point may be at the gateway or at the machine/sensor level, depending on the project requirements. Technology buyers should enquire as to whether the vendor can support the IoT endpoints they will need to connect to – over the preferred protocols for connecting to those devices – and ask what is supported out of the box versus requiring additional custom development work.

- **Integration capabilities:** Companies must consider how the IoT platform will integrate with back-end systems and/or other cloud services, which could include databases, applications, and analytics programs, among others. It is important to understand how IoT data will be secured in the context of integration with other systems. In this vein, APIs and API management will grow increasingly important as companies look to monetize IoT data.

- **Edge support:** According to IDC's *Global IoT Decision Maker Survey,* over half of companies will "collect and transmit IoT data to an enterprise-grade datacenter (i.e., they have a

preference for a centralized computing model). However, edge computing is the choice for 43% of the companies surveyed. These survey results demonstrate the importance of the IoT platform's ability to collect data as well as process and analyze those capabilities at the edge (see *2015 Global IoT Decision Maker Survey: Vertical Analysis,* IDC #US40756916, June 2016). These capabilities are especially critical in industrial scenarios.

- **Breadth of complementary portfolio offerings:** The majority of IoT platform implementations today require services support. We recommend that technology buyers evaluate the vendor's portfolio of services offerings aimed at successfully strategizing, implementing, and managing IoT deployments. In addition to services, we believe a portfolio of applications (or solutions) will help customers realize faster time to value. Finally, while we expect that prescriptive analytics will be part of the typical IoT platform arsenal, customers should also understand how the vendor will support predictive/prescriptive analytics.

- **Delivery model options:** This is always an important consideration in a technology purchase. While some customers are okay with limited options for their initial pilots, they could see the need for additional delivery models on the horizon as they expanded the IoT program into additional business units or geographies with strict data privacy rules. Managed cloud offerings were also praised for their ability to reduce operational upkeep.

- **Pricing:** Pricing was a sore spot for most customers interviewed for this research. Many felt current pricing models were too opaque and offered little ability to predict costs. However, they also had some tolerance for this ambiguity due to the early stage of the roll out. Technology buyers should consider the various use cases the IoT platform may need to support and whether the vendor's pricing model will be appropriate across all of those.

- **Ecosystem:** IoT is an ecosystem play with various companies providing technology at the device, network, and software layer. No one vendor can do it all, nor should they aspire to. Customers should discuss their IoT strategies with potential platform providers to understand what kind of partnerships they have in place to support those plans.

- **Customer service:** One of the challenges in this space is that the IoT data will interact with many potential points of failure and security risk as the data moves from the initial point of collection to its final destination (which may be more than one place). Customers should ask vendors which potential issues are supported within the umbrella of the IoT platform and which issues may be referred to a third party for resolution.

VENDOR SUMMARY PROFILE

This section briefly explains IDC's key observations resulting in a vendor's position in the IDC MarketScape. While every vendor is evaluated against each of the criteria outlined in the Appendix, the description here provides a summary of the vendor's strengths and challenges.

Microsoft

According to IDC analysis and buyer perception, Microsoft is a Leader in the IDC MarketScape for IoT platforms.

Vendor IoT Strategy

Microsoft views IoT as a business revolution being fueled by technology. IoT is central to Microsoft's intelligent cloud and intelligent edge strategy as it drives the ingestion of data and continued use of complementary Azure services. The company sees the business value of IoT realized in three stages: connecting and monitoring assets, analyzing IoT data to take action and improve processes based on

that data, and transformation, where customers can introduce new business models and product lines based on the insights they've gathered.

Vendor Offering in This Space

Microsoft's IoT platform is the Microsoft Azure IoT Suite. The key value propositions of the Azure IoT Suite include the ability to quickly connect IoT devices and systems, discover new insights, and enhance security. The Azure IoT suite is a collection of cloud services including:

- **IoT Hub:** Device-to-cloud and cloud-to-device messaging capabilities and acts as the gateway to the cloud and the other key IoT Suite services
- **Stream Analytics**: In-motion data analysis
- **Machine learning:** Predictive analytics tool
- **Azure Web Apps and Microsoft Power BI:** Data visualization capabilities
- **Azure Storage and Azure Cosmos DB:** Data storage capabilities
- In addition, Microsoft offers preconfigured solutions on top of this suite to speed time to market

Microsoft also offers three categories of SDKs:

- **Azure IoT Device SDK,** to build apps that run on IoT devices
- **Azure IoT Service SDK,** to manage IoT the hub, and optionally send messages to IoT devices
- **Azure IoT Edge,** to build gateways to enable devices that don't use one of the supported protocols or to process messages on the edge

Other Related Portfolio Offerings

- Microsoft offers three preconfigured solutions to run on top of the Azure Suite:
  - Remote monitoring
  - Predictive maintenance
  - Connected factory
- Cortana Intelligence Suite – big data/advanced analytics platform
- Microsoft Dynamics 365 – intelligent cloud applications
- Microsoft HoloLens for augmented reality

Strengths

- Microsoft has assembled a large collection of certified device partners (545 devices from 182 partners) and SI partners to help customers get their products connected to the internet faster.
- Microsoft has bundled into its suite important IoT capabilities such as machine learning and streaming analytics that are often available as add-ons from other companies. Doing so can help lower complexity and manage costs for customers.
- Microsoft's Azure IoT offerings are part of the company's broader Azure cloud distribution channel, offering the company a well-developed global distribution network that includes training, incentives, and so forth.
- Integration and device management capabilities are rated highly by customers.

Challenges

- Microsoft is still in the process of developing the capabilities to offer a consistent experience from cloud to edge. However, the company has recently announced Azure IoT Edge, which adds device management and data processing at the edge.
- Microsoft offers horizontal preconfigured solutions with IoT Suite; the vertical go to market is through partners, which gives Microsoft itself less direct control of marketing these solutions to prospective customers.
- Customers feel the pricing model needs to be simplified. However, the Azure IoT Suite is offered in single SKU pricing.

APPENDIX

Reading an IDC MarketScape Graph

For the purposes of this analysis, IDC divided potential key measures for success into two primary categories: capabilities and strategies.

Positioning on the y-axis reflects the vendor's current capabilities and menu of services and how well aligned the vendor is to customer needs. The capabilities category focuses on the capabilities of the company and product today, here and now. Under this category, IDC analysts will look at how well a vendor is building/delivering capabilities that enable it to execute its chosen strategy in the market.

Positioning on the x-axis, or strategies axis, indicates how well the vendor's future strategy aligns with what customers will require in three to five years. The strategies category focuses on high-level decisions and underlying assumptions about offerings, customer segments, and business and go-to-market plans for the next three to five years.

The size of the individual vendor markers in the IDC MarketScape represents the estimated market size of each individual vendor within the specific market segment being assessed.

IDC MarketScape Methodology

IDC MarketScape criteria selection, weightings, and vendor scores represent well-researched IDC judgment about the market and specific vendors. IDC analysts tailor the range of standard characteristics by which vendors are measured through structured discussions, surveys, and interviews with market leaders, participants, and end users. Market weightings are based on user interviews, buyer surveys, and the input of IDC experts in each market. IDC analysts base individual vendor scores, and ultimately vendor positions on the IDC MarketScape, on detailed surveys and interviews with the vendors, publicly available information, and end-user experiences in an effort to provide an accurate and consistent assessment of each vendor's characteristics, behavior, and capability.

Market Definition

IDC's IoT platforms market is a competitive software market representing portions of selected application development and deployment and systems infrastructure software markets as described in *IDC's Worldwide Software Taxonomy, 2016* (IDC #US41572216, July 2016). The architecture of an IoT platform is very diverse from vendor to vendor but typically includes some combination of the following components:

- *Device management* is for endpoint provisioning, remote configuration, data monitoring, software updates, and error reporting. Device management ensures the ongoing ability of the endpoint to send and receive data. Software is often deployed via an agent client installed on endpoints. Some solutions may also include an identity management component that stores device information and device identities.

- *Connectivity management* ensures data flows from the edge to the cloud and is managed and secured in transit with encryption capabilities. This may be limited to IP communication via a cloud gateway, which communicates bidirectionally with endpoints typically through protocols such as MQTT, AMQP, CoAP, or REST APIs. For deployments relying on cellular connectivity, some IoT platform vendors can provide SIM management, including billing and SIM alerts. Partnerships are common in this area to meet the requirements of global deployments running over various communication networks.

- *Data ingestion, processing, and management.* IoT platforms often include rules engines that route incoming data to the correct destination. Typical destinations include storage mechanisms, other applications, or web services. They may also perform basic anomaly detection by comparing incoming data to a set of rules defined by an organization. Data transformation, aggregation, and enrichment, and complex event processing capabilities may also be included in some IoT platform products.

- *Visualization tools* and *dashboards* allow companies to manipulate IoT data or visualize it in real time.

- *Application enablement* is often in the form of APIs to platform services. With APIs fully documented, organizations or third parties (e.g., app developers, systems integrators, and SaaS vendors) can push and customize IoT platform data according to their requirements. Marketplaces are emerging in this area, and partnerships are often localized to a country or verticalized by industry. Some vendors also package application development tools as a standardized platform component.

- *Advanced Analytics,* such as machine learning and predictive analytics tools, are most often not a standard platform component today but offer a differentiation opportunity for IoT platform vendors.

Vendors Included in This IDC MarketScape

- Amazon Web Services
- Ayla Networks
- Bosch Software Innovations
- Fujitsu
- GE Digital
- HPE
- IBM
- LogMeIn
- Microsoft
- Oracle
- PTC
- SAP

Inclusion Criteria

All vendors included in this IDC MarketScape met the following criteria:

- Has a standalone commercial IoT platform offering in market by December 2016
- Offer horizontally appropriate capabilities and sell into multiple vertical industries
- Provide at least four of the six core IoT platform elements in their offering (Connectivity management capabilities were necessary for consideration.)
- Has customers that had been leveraging the platform for six months or more

LEARN MORE

Related Research

- *IDC's Worldwide Semiannual Internet of Things Spending Guide Taxonomy, 2017* (IDC #US42556315, May 2017)
- *Huawei's IoT Strategy: Evolved* (IDC #US42519417, May 2017)
- *Worldwide Internet of Things Installed Base by Connectivity Forecast, 2017-2021* (IDC #US42331917, March 2017)
- *The IBM Genius of Things Summit and the Role of the IBM Watson IoT Platform* (IDC #EMEA42358617, March 2017)
- *IoT Decision Maker Perspectives: Enterprise IoT Budget Allocations in the United States Versus Worldwide* (IDC #US42303817, February 2017)
- *IoT Decision-Maker Perspectives: Vendor Selection Preferences in the United States and Worldwide* (IDC #US42303717, February 2017)
- *IoT Platforms – A Worldwide Analysis* (IDC #US42186716, January 2017)
  Market Analysis Perspective: Worldwide IoT Ecosystem and Trends, 2016 (IDC #US40757416, September 2016)

Synopsis

This IDC study represents a vendor assessment of the current worldwide IoT platforms market through the IDC MarketScape model. This research is a quantitative and qualitative assessment of the characteristics that explain a vendor's success in the marketplace and help anticipate its ascendancy. This IDC MarketScape covers 12 software vendors participating in the worldwide IoT platforms market. This evaluation is based on a comprehensive set of parameters expected to be most conducive to success in the short term and long term.

"As a core technology product responsible for collecting IoT data and feeding that data into analytical models and services, IoT platforms play a critical role in the IoT ecosystem," said Stacy Crook, research director within IDC's Internet of Things Ecosystem and Trends research practice. "Organizations around the world must now decide which IoT platform offers the best alignment with their digital transformation goals."

About IDC

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