# IoT platform wars: The battle for the 4th enterprise platform

## IoT platforms are called to become the fourth major wave of enterprise platforms following the Web, cloud and mobile. The ecosystems for enterprise IoT platform remains incredibly crowded and complex to navigate but we can already see the front runners.



Internet of Things (IoT) platforms are set to be an important component of the next decade of innovation in the enterprise. Just like the previous generation of platforms focused on connecting systems and people, IoT platforms are starting to power solutions that connect smart devices, enterprise systems, and people. From that perspective, IoT is raising a new set of challenges across the traditional enterprise spectrum in areas such as security, analytics, data storage, messaging, and many other fundamental elements of enterprise solutions. As a result, organizations of all sizes are starting to embrace IoT platforms as a foundational component of the next generation of enterprise solutions.

The rapid rise of IoT in the enterprise has triggered an explosion in the number of providers offering complete stacks that provide backend and infrastructure capabilities required in enterprise IoT solutions. From innovative IoT startups to enterprise software incumbents the market is inundated with platforms that promise to be the silver bullet for enterprise IoT challenges.

### **The 4th enterprise platform**

IoT has all the characteristics of becoming a multi-decade transformational movement in the enterprise. From this perspective, IoT platforms can be considered the 4th foundational generation of enterprise software platforms. The first generation platforms were powered by the emergence of the web, which brought together a new group of platforms in areas ranging from databases to user interface frameworks.

The web movement was followed by the cloud and SaaS platforms that have completely changed the way enterprises architect and develop solutions. The mobile revolution hasn’t been as relevant in the enterprise as its cloud and web predecessors—but it can still be considered a transformational movement when it comes to powering a new wave of solutions and technologies. While the cloud and mobile platforms are still developing and garnering adoption in the enterprise, we are now entering the era of IoT platforms.

### **A lot of noise but not a lot of traction**

Evaluating IoT platforms in an enterprise context can be an exhausting endeavor. As mentioned previously, the market is crowded with sophisticated platforms that provide the backend and infrastructure capabilities required by IoT solutions. However, the IoT platform landscape is not as complicated as it might seem on the surface.

Beyond the crowded ecosystem, there are only a handful of vendors that have achieved relevant traction with customers, developers, and partners in the enterprise. More importantly, many of the enterprise software incumbents have entered the IoT race with very innovative platforms and attractive distribution models. This factor alone should help to compact the IoT platform space as many startups will have a lot of difficulty remaining competitive in the long term against the incumbents. When evaluating IoT platforms, we can group the options in different categories as listed below.

#### **The first movers: IoT platform startups**

**Relevant technologies: [Xively](https://xively.com/), [ThingWorx](https://www.thingworx.com/)**

Like many other areas in enterprise software, innovation in the IoT space was driven by the emergence of a robust startup ecosystem. While many startups have come to market with technologically innovative IoT platforms, a few have achieved meaningful traction within the enterprise. Platforms like Xively and ThingWorx have certainly distinguished themselves from the group, capturing relevant market share within the early adopters of enterprise IoT solutions.

**Relevant technologies:** [Watson IoT Platform](http://www.ibm.com/internet-of-things/), [AWS IoT Hub](https://aws.amazon.com/iot/), [Azure IoT Suite](https://azure.microsoft.com/en-us/solutions/iot-suite/)

Amazon, Microsoft, and IBM have entered the IoT space by extending their platform as a service (PaaS) offerings with IoT-specific capabilities. This model has given the PaaS providers a competitive advantage as the feature set of their IoT platforms combined with their PaaS services far exceeds the capabilities of any standalone IoT offering in the market. Additionally, these groups of IoT platforms can leverage the strong distribution models as well as the sophisticated partner ecosystems developed by the PaaS incumbents.

#### **The industry experts: Industrial solution providers**

**Relevant technologies:**[GE Predix](https://www.ge.com/digital/predix)

Enterprise IoT solutions require deep industry expertise which is typically not delivered by IoT startups nor the PaaS incumbents. As a result, many industrial solution providers have attempted to leverage their domain knowledge to enter the IoT platform race. GE Predix stands out as the most relevant IoT platform from that group. GE Predix has developed a clever model combining existing open source infrastructure platforms like Cloud Foundry with a unique set of industry specific capabilities. As a result, GE Predix has achieved record setting revenues in the IoT platform space posting $6 billion in revenue last year and forecast to hit $15 billion by 2020.

#### **The integrators: SOA platform vendors**

**Relevant technologies:**[WSO2 IoT platform](http://wso2.com/iot)

Integration platforms have been a key element of enterprise software solutions for the past few decades. EAI, ESB, and iPaaS platforms are an omnipresent piece of enterprise software portfolios and now these platforms are attempting to expand into the IoT space. While we are still in the early days of the IoT platform movement, it’s interesting to see how the majority of integration platform providers have struggled to make a smooth transition into the era of connected devices. WSO2 seems to be an exception to the rule. The middleware and SOA platform provider has been able to deliver a very innovative, open source IoT platform that is starting to achieve meaningful traction in the market.

### **The IoT platform wars**

The race in the IoT platform space is just getting started but we can already foresee the frontrunners. As IoT evolves in the enterprise, we are likely to see new platforms emerge and some of the current leaders lose traction. Unlike the web, cloud, and mobile predecessors, many relevant enterprise software incumbents have jumped in the race very early and are driving innovation at a frantic pace. The next few years promise to be an exciting time for the IoT platform space.

This document has two parts. First the connection between the IoT and the other platforms and second the revolution of IoT through the other platforms. It is mentioned that though there are several challenges for IoT from other technologies such as web, database, mobile and cloud, the revolution of IoT can be seen through the different kind of evaluation categories with succeeded examples.