

PYMNTS.com

NOVEMBER 2018

# IoT

## Intelligence of Things Tracker™

### Envisioning Self-Driving Cars:

FROM GROCERY DELIVERY TO RIDE-HAILING

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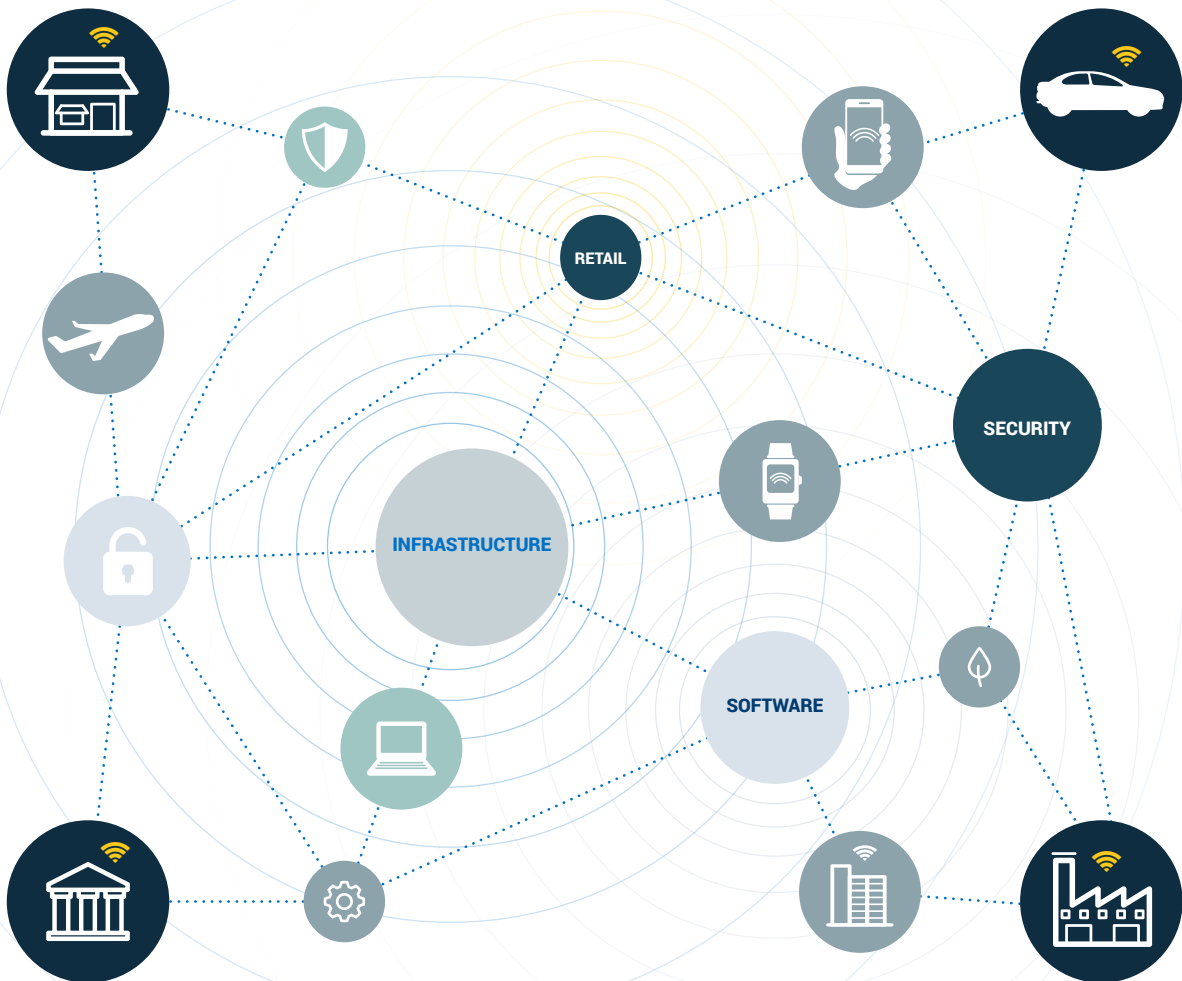
## Making The World 'Smart' – One IoT Connection At A Time

### HOME

Researchers report that mass hacks of IoT consumer appliances could disrupt power grids. (p. 16)

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## Intelligence of Things (IoT) investments are on the rise.

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In 2017, companies spent [\\$186.1 billion](#) to design, plan, build and operate IoT solutions. That figure is predicted to skyrocket to \$434.9 billion by 2023. Much of this growth has come from inventory and supply chain management applications, according to a recent report. By 2023, the inventory and supply chain management sector is expected to reflect \$113.5 billion in IoT spending — about 26 percent of that year's IoT investment total.

Corporations indicate that employees are more open to IoT solutions, which may be helping IoT's growth. According to a survey, fewer information technology (IT) decisionmakers — [64 percent](#) — expect employee pushback against their IoT plans, down from 75 percent in 2017. Additionally, 85 percent of decisionmakers surveyed expect their companies to boost IoT and mobility investments.

Service providers are encouraging companies to invest in IoT as well. IT solutions and services company Larsen & Toubro Infotech, for example, recently [partnered](#) with software company PTC to launch an IoT center of excellence in Bengaluru, India. The center intends to show companies the benefits of industrial IoT solutions — in particular, those developed with PTC's ThingWorx platform.

But while industries increasingly embrace IoT, consumers and public-sector players are trying to balance the technology's potentials and risks.

### Around the IoT world

IoT's early adopters, those who are most excited to try and buy connected tech, often know the most about IoT — including its security and privacy challenges.

According to a recent [report](#), security concerns cause some early adopters to be wary of new IoT devices. While 90 percent of American and European early adopters report being excited about IoT, 66 percent say they've delayed a smart home device purchase because of privacy worries. U.S. consumers in general are becoming more aware of cybersecurity issues; 62 percent reported they know what "ransomware" is, up from 37 percent in 2015.





And consumers have cause to be concerned: A study from Princeton University [outlines](#) how cybercriminals could cause power outages by seizing control of smart home devices. Researchers said hackers could access and operate thousands of connected home appliances to put stress on energy grids and trigger local power outages — or even large-scale blackouts.

In the face of these IoT security risks, the U.S. government is promoting better cybersecurity among its agencies.

The National Institute of Standards and Technology (NIST) recently [drafted](#) a report indicating that even if federal agencies avoid using IoT devices, vendors or other players who use the technology can still put those organizations at risk.

### Connected Cars Drive New Services

Autonomous cars are among the latest IoT technologies to catch the attention of both businesses and governments. The global self-driving vehicle market is expected to grow rapidly between 2021 and 2030, and players in the space are busy testing the technology and finding new uses for it.

[Udelv](#), for one, is offering an autonomous vehicle-powered delivery service. PYMNTS recently spoke with Adriel Lubarsky, director of business development for the self-driving delivery service, about how autonomous vehicles could help grocery retailers and other merchants reach more customers and provide added convenience.

But that's not the only new use for the technology. Mercedes-Benz and Bosch have recently partnered with the city of San José to test self-driving cars in the second half of 2019, with the ultimate goal of providing a self-driving ride-hailing service. As part of this month's feature story (p.7) PYMNTS also caught up with Jill North, the innovation program manager for the city of [San José](#), to discuss the city's collaboration on the pilot program and its hopes for the technology.

### November Tracker updates

The November Intelligence of Things Tracker™ profiles 296 providers, including three new additions: Augury, Ayyeka and Nwave.







FEATURE STORY

# Envisioning Self-Driving Cars:

FROM GROCERY DELIVERY TO RIDE-HAILING





“

We'd like to prove that you can leverage the power of autonomous vehicles to increase transit ridership rather than take away from it. ”

JILL NORTH

San José's innovation program manager

# FEATURE STORY

Self-driving cars are the talk of the IoT space, and the technology is projected to see serious growth in the coming years. Many organizations, from retailers to local governments, are turning to self-driving technology to help them reach their goals and to get purchases and people to their destinations.

As more merchants harness the potential of self-driving vehicles, the global market size of the technology is projected to grow at a rate of [63.1 percent](#) between 2021 and 2030. Autonomous vehicles can help retailers boost the convenience of their delivery services and reduce their own costs, said Adriel Lubarsky, director of business development for self-driving delivery service provider [Udely](#), in a recent PYMNTS interview.

“About 65 percent of the cost of last mile [goods] delivery comes from the driver, and that cost is growing over time,” Lubarsky said.

Other merchants, such as Mercedes-Benz and Bosch, are eyeing self-driving cars for ride-hailing services. The two companies will soon test the technology in [San José](#), California. Jill North, the city's innovation program manager, recently told PYMNTS that officials hope the service can fill transit gaps and boost ridership.

“We'd like to prove that you can leverage the power of autonomous vehicles to increase transit ridership rather than take away from it,” North said.



### Groceries around the clock

For Udelv, founded in 2016, self-driving vehicles are all about easing the “last mile” — or final transit leg — of delivery.

The company offers its autonomous vehicle-powered delivery services to retailers and other companies through a subscription service. Clients load their customers’ purchases into the cars’ locked compartments, and customers then use Udelv’s app to track their deliveries. The app alerts customers when their deliveries arrive, so they can unlock the appropriate compartment to retrieve their goods.

Grocery retailers, in particular, have taken an interest in Udelv’s service. Many retailers expect digital sales — which have historically been a small part of the industry’s business — to surge, and they are readying delivery services to meet the predicted increase in demand.

“They’re preparing for what they expect to be an enormous increase in the amount of deliveries they’ll be doing,” Lubarsky explained.

But Udelv’s solution can also benefit businesses — such as those selling pharmaceuticals, baked goods and auto parts — that want to offer delivery options outside of normal business hours. With Udelv’s self-driving service, companies have to focus only on finding staff willing to load their goods, without worrying about drivers’ schedules.

## UNDER THE HOOD

*The city of San José expects autonomous vehicles to provide useful information for city transit planning. How could the city use this data to help it make infrastructure and transit decisions?*

“We’re looking at opportunities [for] data sharing that are unique and different, and answer some of our goals. An example would be pedestrians crossing [in the middle of the street]. If we’re able to get that kind of [anonymized, aggregated] data and see a heat map that indicates where we see a lot of that, we can make an infrastructure decision to put a crosswalk there or analyze what’s going on. That’s the way we’re thinking about [using the data we receive].”

*Jill North, innovation program manager for the [city of San José](#)*

“A self-driving car doesn’t care what time of day it is, doesn’t care that it’s Christmas or a Sunday,” Lubarsky said. “You can run a larger-scale delivery operation ... during that time.”

Self-driving vehicles’ ability to deliver at any time is crucial for Udelv clients like the Second Harvest Food Bank, Lubarsky said. Many people served by Second Harvest hold multiple jobs or have other responsibilities, and they often aren’t home to accept deliveries until late in the evening. But most of the food bank’s volunteer drivers are seniors who either can’t or won’t work during those hours, making a supplementary self-driving vehicle service like Udelv all the more valuable, Lubarsky said.

Autonomous vehicle delivery can offer companies added flexibility in other ways as well. For instance, while companies might be reluctant to ask human drivers to stay parked at their locations for extended periods of time, self-driving cars can remain at their destinations as long as needed to allow customers to pick up goods at their convenience.

Still, human drivers have some advantages — including the ability to place packages on customers’ porches if they aren’t home. To handle issues like this, the Udelv app allows customers to



text any of their phone’s contacts, such as a family member or co-worker, with the credentials needed to open the delivery compartment.

### **Ride-hailing in the city**

Since self-driving car projects operate on streets alongside drivers, bicyclists and pedestrians, cities are interested in the data and access that these services can provide.

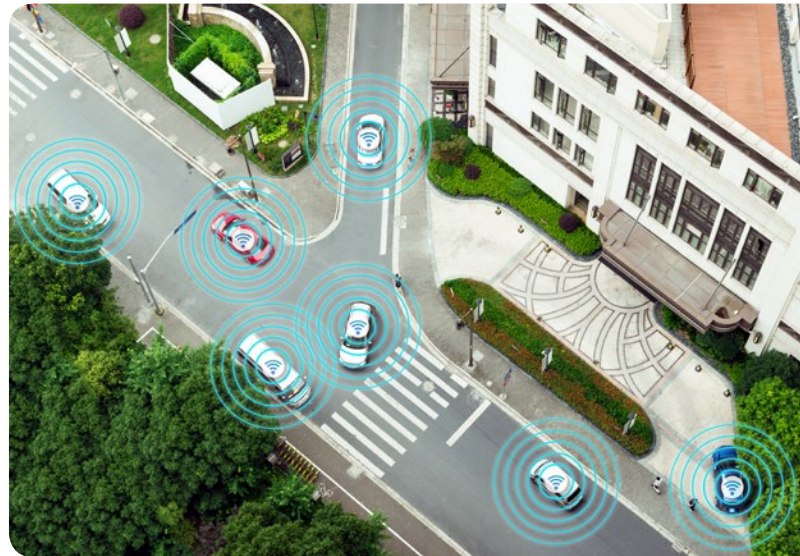
In California, the city of San José is partnering with Bosch and Daimler’s Mercedes-Benz on the companies’ test of a ride-hailing service that uses autonomous cars. During these trials, which are set

to launch in the second half of 2019, some citizens will be able to catch rides from a designated pickup area. The companies' ultimate goal, however, is to allow consumers to hail the vehicles through an app.

Jill North, San José's innovation program manager, said the city is involved in the process and will allow the vehicles to connect with its traffic light system. Instead of relying on sensors to determine whether a light is green, autonomous vehicles would automatically receive information on what color the light is, as well as information about other lights in the city — which could eventually help them optimize their routes.

"Almost all 960 of our intersections [traffic lights] can be controlled in real time and are connected," North told PYMNTS. "From an autonomous vehicle standpoint, we can provide that feed to the vehicle. So now you have a safety redundancy because you have vehicles connected to the infrastructure."

The city sees the service as a potential transit option for seniors and those who can't afford their own vehicles. North also predicted that it would increase

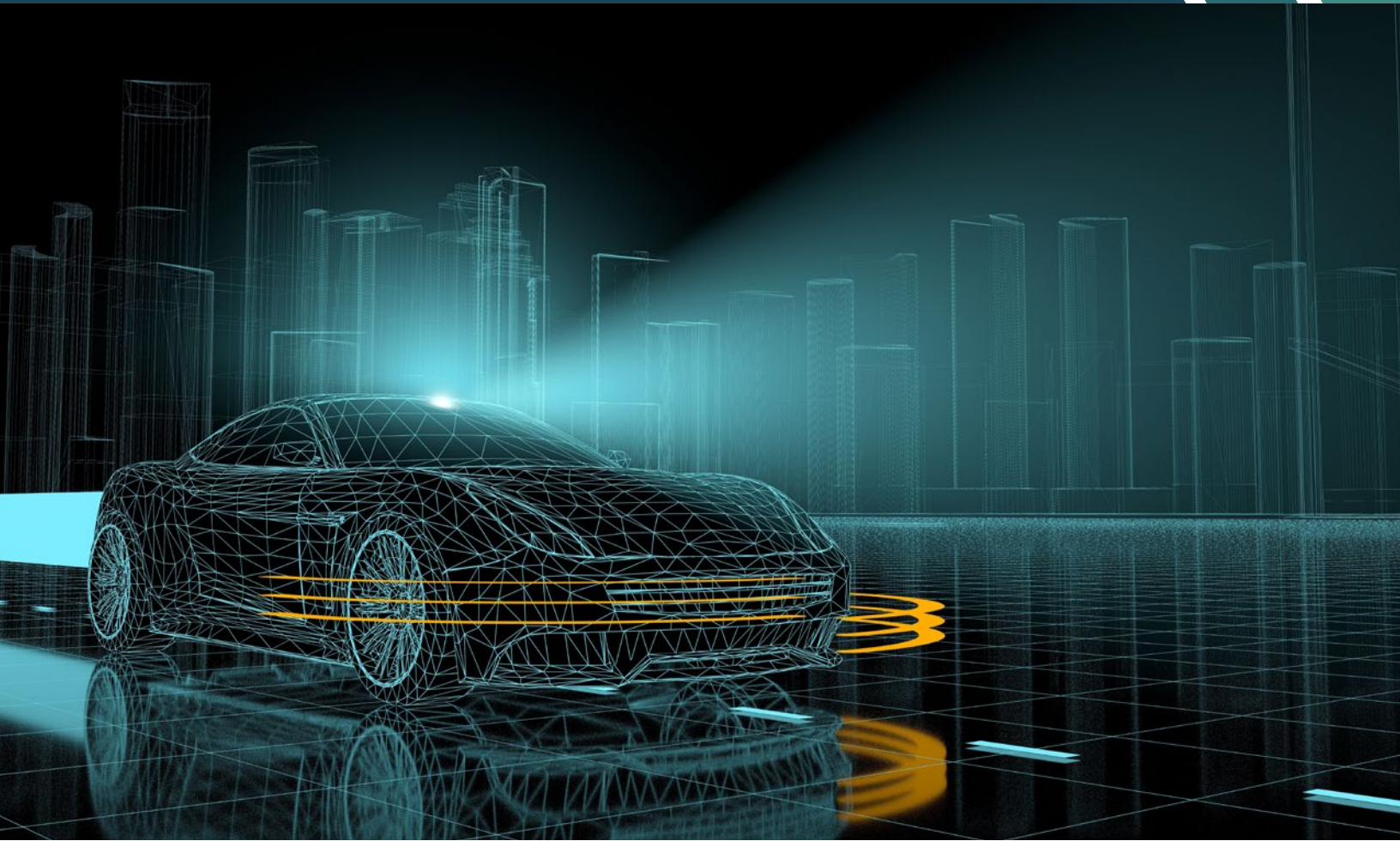


public transit ridership by resolving train station parking issues, which could push potential train riders to drive to their destinations instead.

The future of self-driving cars is still taking form. But as companies and industries increase their focus on autonomous vehicles, cities and businesses can expect to see more of the technology in the coming years.







## Transportation tech

### **Standard Chartered, Huawei partner on IoT-based payment automation**

Standard Chartered Bank and Huawei — a Chinese solutions provider for telecom networks, IT, smart devices and cloud services — are working together to [pilot](#) a supply chain IoT-based payments solution, which they announced during the Huawei Connect 2018 expo in Shanghai. The solution uses Huawei's cloud-based IoT platform, called OceanConnect, to track shipments' locations in real-time and could lower risks and provide data that informs financing decisions.

According to a Huawei press release, the solution increases support for straight-through processing, which allows companies to accelerate their transaction times. By linking with bank or corporate application program interfaces (APIs), these IoT flows could automatically initiate trade payments or financing transactions when certain criteria are met. The solution could also highlight supply chain risks, according to the release.

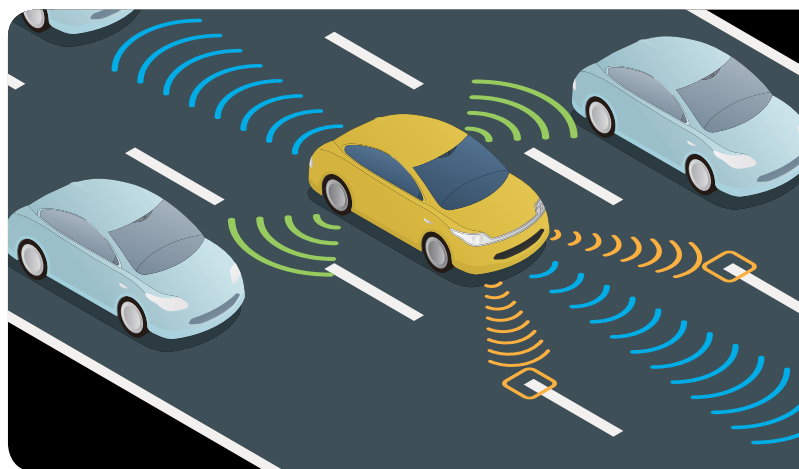
### Paragon implements remote solution to fleet management

India-based footwear company Paragon also wants to keep better track of its shipments by using IoT technology to step up its distribution processes. Paragon, which distributes across India, wanted to ensure that its products reached retailers on time. To better detect issues — such as delivery vehicles breaking down or drivers getting lost — and to monitor loading and unloading times, the company is using an IoT solution to remotely track its fleet. Paragon's [new solution](#) comes from IoT and machine-to-machine (M2M) solutions provider Aeris, in collaboration with information and communication technologies company Sify Technologies.

### Bosch, Mercedes-Benz ready to test self-driving taxis

While Paragon looks to improve its distribution process, other players are focused on consumer vehicles. Technology provider Bosch and Mercedes-Benz, owned by Daimler, announced that they will offer an on-demand ride-hailing service using self-driving cars.

According to a recent Bosch [press release](#), the companies have signed an agreement to test the service in select areas of San José, California — specifically, the San Carlos/Stevens Creek corridor between western and downtown San José. In addition to examining the viability of the service, the tests intend to determine how it could fit into cities' various transportation channels.



The tests, slated for 2019, will use Mercedes-Benz S-Class vehicles. The cars will travel autonomously between pickup locations and destinations, with drivers monitoring the trips for safety.

## Assessing adoption

### Corporations expect increased IoT investments

Bosch and Mercedes-Benz aren't alone: According to a recent report, corporations across the board are spending more on IoT. Research from hardware and software provider Zebra found that nearly [85 percent](#) of IT decisionmakers expect their companies to invest more in IoT and mobility over the next two years. And 50 percent said they predict their companies' average annual IoT spending will increase by 11 to 20 percent year-over-year during that time period.

Employees are also becoming less wary of IoT tech, which could explain the increase in its investment. Sixty-four percent of IT decisionmakers recently told researchers they expect employees to resist their IoT plans, compared to the 75 percent who said so in 2017. Fifty-seven percent of companies also reported that they continually monitor IoT security.

Zebra conducted the online survey between Aug. 6 and Sept. 14. It received 918 responses from IT decisionmakers in the healthcare, manufacturing, transportation and logistics and retail fields. Respondents were from the U.S., Japan, India, China, Brazil, Mexico, Germany, France and the U.K.

### **F-Secure report highlights consumers' security concerns**

But companies aren't the only ones that believe security is crucial — consumers do, too, according to a new [report](#) from cybersecurity solutions and

services provider F-Secure. The report draws on interviews with 19,200 consumers in the U.S. and Europe that were conducted in 2014, 2015 and 2018.

Privacy and security concerns could be hindering the rate of IoT adoption, the report found. While 74 percent of so-called IoT "early adopters" report interest in purchasing smart home devices, 66 percent have delayed a purchase due to privacy concerns. American consumers are becoming increasingly aware of the threats posed by IoT technology, with 62 percent saying they know what ransomware is, compared to only 37 percent in 2015.

Tom Gaffney, an F-Secure consultant, said in the press release that while some consumers seek out IoT devices, others are buying them because they cannot find non-connected devices. Even so, Gaffney said, more people would be likely to accept IoT offerings if there were better regulations in place to safeguard personal data.

## Tech debuts

### **Larsen & Toubro Infotech, PTC create IIoT center of excellence**

Some service providers have noticed the industrial sector's growing interest in IoT solutions. IT solutions and services company Larsen & Toubro Infotech and software company PTC recently [launched](#) a center of excellence in Bengaluru, India, to showcase the potential of industrial IoT (IIoT) solutions. The center also supports the design and creation of IIoT solutions.





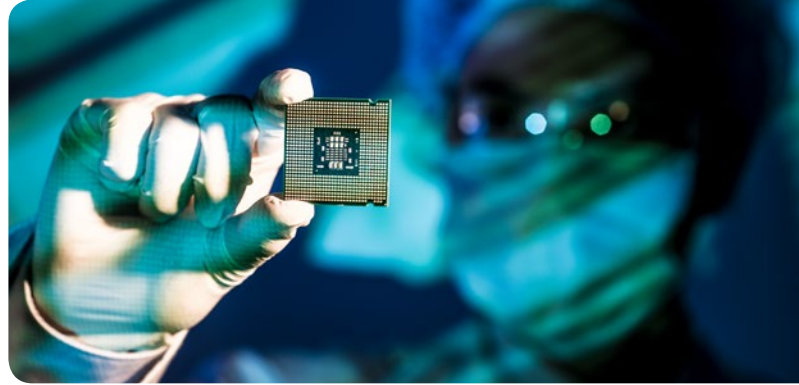
According to an announcement, the companies will focus on applications in the manufacturing, and oil and gas industries. PTC's ThingWorx development and deployment platform will be used to create the IIoT solutions featured at the center.

### **CMU, ISR announce temporary tattoo electronic circuit**

Other new IoT developments could broaden the approach to wearables. Carnegie Mellon University (CMU) recently [announced](#) a new method for creating circuits that can be attached to the skin for wearable computing. CMU researchers created the method with researchers from the Institute of Systems and Robotics at the University of Coimbra in Portugal.

To make the circuit, a conductive liquid metal alloy is printed at room temperature onto tattoo paper and attached to skin in the same manner as a temporary tattoo. It can withstand bending and folding, and can even be applied to curved surfaces. The [approach](#) is intended to be more cost-effective, simpler and easier to apply than other electronic tattoo techniques.

Carme Majidi, an associate professor of mechanical engineering at CMU, said in a video included with the announcement that the technology could “augment any kind of wearable or personal electronic device you could have.”



## Partnerships and acquisitions

### **Arm partners with Intel, myDevices, Arduino**

IoT players are also teaming up outside the academic space. IoT solutions company Arm has [formed](#) a number of partnerships that enable the company's Pelion IoT platform to manage more smart devices. Via a partnership with semiconductor manufacturer Intel, the Pelion platform can manage Intel Architecture (x86) systems, as well as Arm-based smart devices and gateways. Integrating Arm's Pelion Device Management solution with Intel's Secure Device Onboard service helps organizations create devices without worrying about which onboarding credentials or application framework their customers will use, according to an Arm [press release](#).

An Arm partnership with IoT solutions company myDevices, meanwhile, simplifies the devices' onboard ranges. The partnership also boosts the



number of sensors, gateways and solutions available to myDevices customers via Arm's Pelion platform. A third partnership with Arduino, an open-source electronics platform provider, helps developers quickly create cellular IoT designs.

### Tata acquires Teleena

While Arm adds partnerships, Tata Communications is adding an entire company. The telecommunications company recently [acquired](#) IoT and mobility company Teleena, purchasing a 100 percent stake in the company for an undisclosed sum. Through the acquisition, Tata gains Teleena's technology offerings, including its mobile virtual network enabler platform and its IoT suite, which features a management portal for IoT devices, data and connections. Tata will also take on Teleena's customers and employees.

The acquisition follows an earlier investment made by Tata in 2017, when it acquired a 35 percent stake in Teleena.

## State of security

### Many SMBs unprepared for cyberattacks

While device management services are compelling, businesses have an additional IoT need that too often goes unanswered: security. According to a recent [study](#) from Nationwide, while the vast majority (91 percent) of small- and medium-sized businesses (SMBs) use IoT technology, nearly two-thirds (65 percent) don't have an employee or vendor who is dedicated to monitoring cyberattacks. What's more, 48 percent said they were "unconcerned" about the increased risk of cyberattacks posed by IoT tech.

In many cases, SMBs seem to unaware of the risks. Only 9 percent of respondents answered "yes" when asked if their business had been hit by a cyberattack. But when respondents were given a list of cyberattacks to consider, 50 percent said they had been victims.

When attacks do happen, they hit hard. Roughly one-third of SMBs said it costs about \$50,000 to recover from a cyberattack. Forty-five percent reported that it took them three to five months to restore their operations.

### Consumer smart devices can be a risk to power grids

A study from Princeton University also reflects the large-scale risks presented by poorly secured IoT devices. According to researchers, hackers can [seize](#) control of connected IoT home appliances to overburden local power grids, causing targeted

outages and even large-scale blackouts. Through a “manipulation of demand via IoT” (MadIoT) attack strategy, hackers could, for instance, take over 90,000 air conditioners or 18,000 electric water heaters at once, creating a surge in power demand that shuts down all generators in a location.

What’s more, the risk of a MadIoT attack could go up: Gartner data projects that the number of IoT devices in homes will rise from 4.8 billion today to more than 15 billion by 2021. The share of smart home appliances being used for botnet attacks, meanwhile, is set to increase from about 40 percent today to more than 75 percent in 2021.

### **NIST tackles IoT security**

As cybercrime concerns mount, some organizations are rallying against security risks. The National Institute of Standards and Technology (NIST), for

one, is developing an IoT cybersecurity standard for federal agencies and organizations. The agency released a draft publication titled, “Considerations for Managing Internet of Things (IoT) Cybersecurity and Privacy Risks,” and accepted comments on the proposal until Oct. 24. Various discussion documents will be released before the finalized standards are published, [said](#) Katerina Megas, NIST’s Cybersecurity for Internet of Things program manager.

Even if federal agencies choose not to use IoT devices, they can still be exposed to security risks through outside parties. These include a range of vendors, each of whom might choose to use IoT, said Robert S. Metzger, a government-contracting attorney at Rogers Joseph O’Donnell, in a conversation with *FCW*.



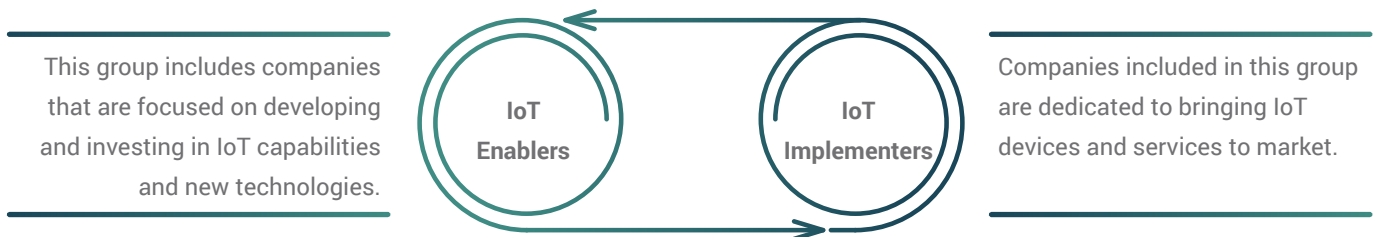


# METHODOLOGY

Every month, we identify active suppliers in the IoT ecosystem by combing through leading industry forums, analyzing research reports and assessing news coverage from around the globe.

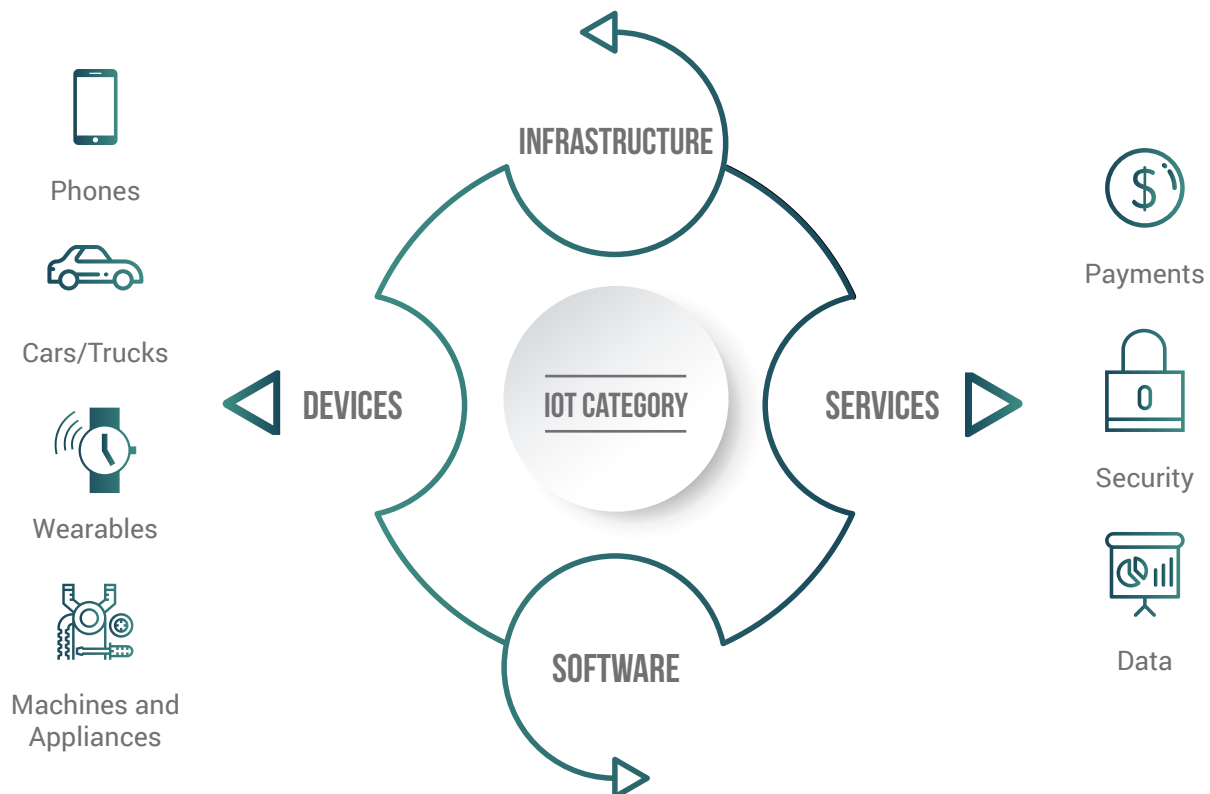
To provide an objective assessment, we group these suppliers under four categories: Devices, Software, Services and Infrastructure.

The Tracker's Supplier Scorecard has been further divided into two groups:



Each of the enablers and implementers in the directory are ranked on the services they extend in the four IoT categories. For a conclusive measure, we quantified their recent activity and public innovation profile in the space through LinkedIn and Google, and marked them as market and company indicators.

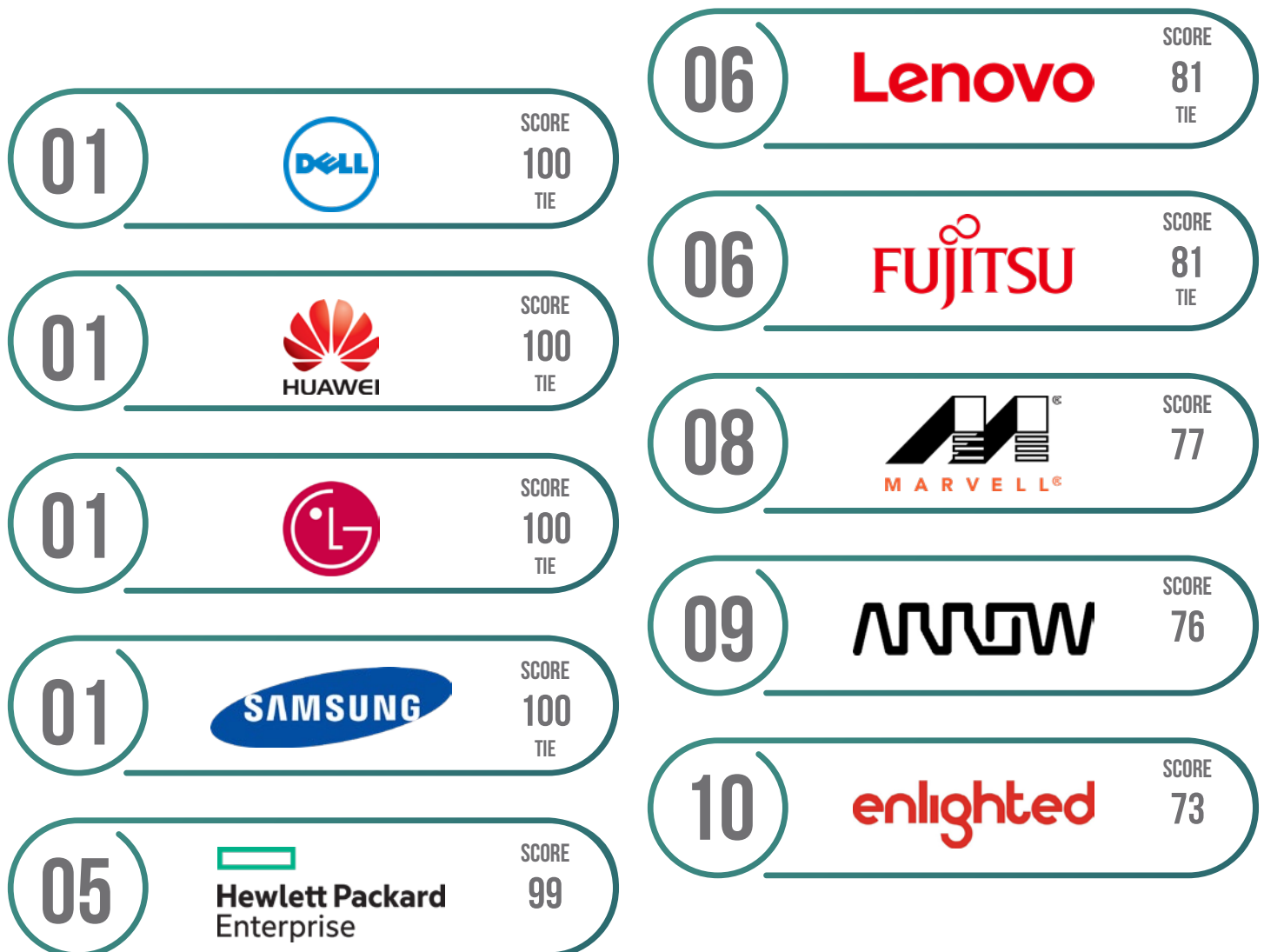
The narrowed list of suppliers selected to be a part of the Tracker are those that appear most often in our research. Information on the selected companies included in our Supplier Scorecard is sourced from their respective websites.



IoT Category	IoT Service	Description
Devices	Wearables	Wearable devices that extend tools such as health and fitness tracking
	Phones	Handsets that come with embedded chips for IoT capability
	Machines and Appliances	Manufactured products containing sensors that transmit data
	Cars/Trucks	Cars and trucks with integrated circuitry for IoT
Software		Software developments with IoT applications
Infrastructure		Architecture necessary for connecting devices, including sensors, chips, gateways and platforms
Services	Data	Data infrastructure, collection, storage, processing, modeling, analysis and visualization
	Payments	Gateways, infrastructure and software associated with payments in the IoT ecosystem
	Security	Security solutions for the IoT environment, including data and devices

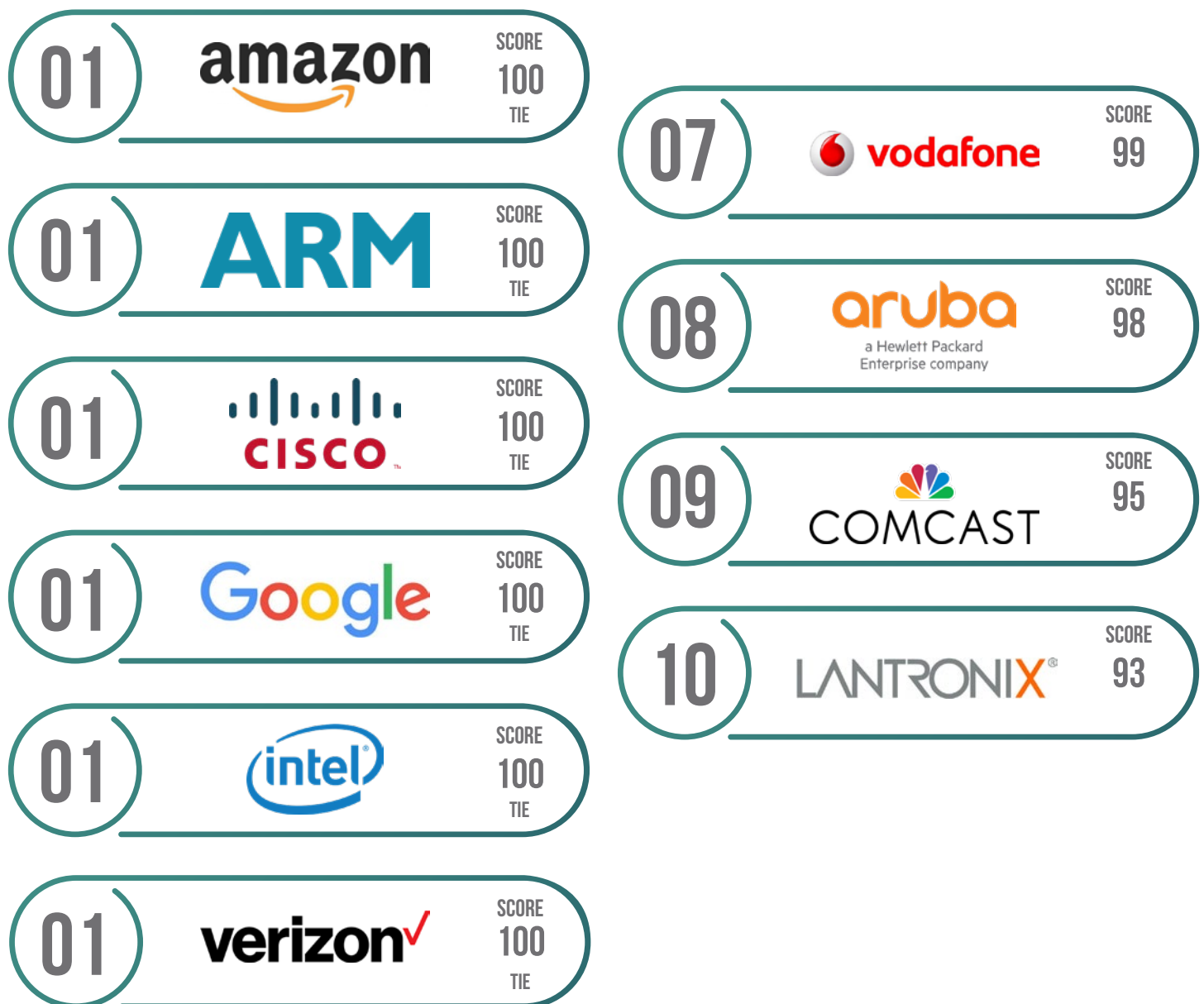
PYMNTS will periodically update scores based on new developments. If you would like your company to be considered for inclusion in the Tracker's Supplier Scorecard, or if you wish to have an existing listing reconsidered for an update, please head over to our [profile submission/update page](#).

## TOP 10 IoT IMPLEMENTERS





## TOP 10 IoT ENABLERS





**ABB**  
Launch date: N/A

ABB manufactures and sells electrification, robotics and motion, industrial automation and power grid products.



**ACER**  
Launch date: 1976

Acer makes information and communication technology products including PCs, displays, projectors, servers, wearables, tablets and smartphones. The firm also offers a cloud-based ecosystem intended to enable customers and businesses to connect their devices and manage data.



**ADHERETECH**  
Launch date: 2011

AdhereTech is a healthcare firm which manufactures smart wireless pill bottles that are currently being used by patients in pharmaceutical and research engagements. This innovative device tracks and improves adherence, collecting and sending all data in real-time. If doses are missed, patients can easily receive customizable alerts such as automated phone calls, text messages, lights and more.



**ADIDAS**

Launch date: 1924

Adidas, the German manufacturer and designer of sportswear, is also playing in the IoT world. The company's miCoach is a service that covers hardware and software developments for fitness tracking. Adidas commercializes wearables like smartwatches, shoe sensors and smart soccer balls and provides users with activity tracking apps that allow for real-time coaching and training scheduling.



**ADT**

Launch date: N/A

ADT provides security and automation solutions for homes and businesses in the U.S. and Canada. Its solutions can control access, react to movement, sense environmental conditions such as flooding or carbon monoxide and respond to personal emergencies like injuries or incapacitation. Users can also remotely access their security videos and control lights or other elements of their homes or businesses.



**ALARM.COM**



**ALARM.COM**

Launch date: 2000

Alarm.com is an IoT company that works in the development of security and smart home services. Their software and devices offer services like interactive security, video monitoring, access and energy management. The company also provides home automation services that integrate different home devices and let users operate them via their smartphones.



**AMBARELLA**  
Launch date: 2004

Ambarella develops low-power, HD and ultra-HD video compression and image processing solutions. Its products are used in a variety of professional and consumer applications including security IP cameras, sports cameras, wearable cameras, flying cameras and automotive video processing solutions. Ambarella compression chips are also used in broadcasting TV programs worldwide.



**APPLE**  
Launch date: 1976

Apple works on the design and development of products ranging from electronics and software to Internet services. Their consumer electronics include smartphones, wearables, computers and smart TVs. Their software developing includes web browsers and operating systems.



**ARROW**  
Launch date: 1935

Arrow Electronics is a leading global provider of Internet of Things (IoT) connectivity products and services. The company distributes electronic components and computer products to industrial and commercial customers. The Company offers a variety of products including computer systems, peripherals, software, and mass storage products to original equipment manufacturers and commercial customers worldwide.



## Implementers Scorecard – Suppliers are listed in alphabetical order.



**ARXAN**

Launch date: 2001

Arxan Technologies offers security services for the IoT, mobile and desktop devices. Its products aim to offer customers protection against financial loss, brand damage, fraud, IP theft, stolen credentials, fraudulent transactions, unauthorized access and non-compliance with regulatory and industry standards.



**ASUS**

Launch date: 1989

ASUS engages in manufacturing and wholesaling computing, communications, and consumer electronics solutions. The company is pioneering new mobile trends with the ASUS ZenFone™ series, and it is rapidly developing virtual and augmented reality products as well as IOT devices and robotics technologies. Most recently, ASUS introduced Zenbo, a smart home robot designed to provide assistance, entertainment, and companionship to families.



**ATHOS**

Launch date: N/A

Athos provides Internet of Things (IoT)-enabled fitness clothing paired with an app offering muscle activity tracking and insights into more effective athletic training.



**ATLAS WEARABLES**

Launch date: 2015

Atlas Wristband is a connected device that tracks fitness data, like the amount of repetitions or burned calories and presents the data in a mobile app. The system is updated over time and includes new exercises or metrics and allows for two different modes: Coach and Freestyle. The Coach mode gives the user a tracked routine to follow, while Freestyle mode just records the data from the user's personalized exercise routine.



**AUGURY**

Launch date: 2012

New!

Augury is an Industrial IoT company bringing predictive maintenance to new markets with cutting-edge machine learning and AI technology.



**AUGUST**

Launch date: N/A

August Home develops smart home access products that use encrypted locking technology. It enables users to use smartphones or computers to create virtual keys for their homes to grant access to house cleaners, dog walkers, delivery services and guests – and control how long that access lasts.



**Automile**



**AUTOMILE**

Launch date: N/A

Automile develops an online platform that connects vehicle drivers and fleet managers with vehicle data. Its web app provides mileage and compliance logging, driver identification, messaging, real-time tracking and other features, and the company also offers asset tracking solutions.



**AYYEKA**



**AYYEKA**

Launch date: 2011

New!

Ayyeka develops end-to-end remote monitoring solutions that streamline and secure the process of bringing field data to decisionmakers and SCADA systems, enabling smart infrastructure and environmental networks.



**Babolat**



**BABOLAT**

Launch date: 1875

Babolat is a sporting goods manufacturer with a connected solution called Babolat PLAY. By using a connected racquet and a smartphone app, users can check their stats, power and technique and compare their performance with friends. The company also offers Babolat POP, a connected wristband which can be paired with smartphones and tennis racquets to collect performance data.



**BAYSHORE NETWORKS**

Launch date: 2012

Bayshore Networks provides cybersecurity solutions for the industrial IoT. Its products aim help companies deliver safe and secure integration of IT and OT networks, systems, data, and infrastructure. Its IT/OT gateway offers security solutions for operational assets from internal and external cyberthreats while enabling operational data to be shared with business systems for monitoring, controlling and analysis. The company also offers security and protection for smart cities.



**BIRD**

Launch date: N/A

Bird is a dockless electric scooter rental company that operates in parts of the U.S., Austria, France, Israel, Mexico and Belgium.



**BLOSSOM**

Launch date: 2013

Blossom offers a smart watering device which builds watering schedules according to local weather forecasts, historical data and vegetable types. Users can also input and customize their own schedules.





**BOSCH**



**BOSCH**

Launch date: 1986

The Bosch Group provides an IoT development platform that allows for the design, development and deployment of big data/Internet of Things applications that leverage telemetry, elastic cloud computing, analytics and machine learning for the usage of predictive analytics. The company also offers IoT applications like supply chain.



**BRAGI**



**BRAGI**

Launch date: 2013

Bragi develops virtual audio assistants to enable productivity, enhance awareness and entertain users. The Bragi Dash Pro is a pair of wireless intelligent earphones featuring Bluetooth connection to other devices. The earphones also enable users to listen to music, or can be used as real-time translators or fitness trackers.



**BRITISH GAS**

Launch date: 1986

British Gas is an energy and home services provider offering its customers Smart Meters for gas and electricity that are intended help them to be in control of how much energy they are using. The company also offers a smart thermostat that enables users control their heating and hot water from their smartphone, tablet or laptop.



**BSQUARE CORPORATION**  
Launch date: 1994

Bsquare offers DataV, a software solution designed to enable businesses and industries to use data from their connected devices to improve their outcomes. DataV provides users with several tools, including device-side logic, cloud analytics, predictive reasoning, predictive analytics and business process optimization.



**C3 IOT**  
Launch date: 2009

C3 IoT provides an IoT development platform that allows for the design, development and deployment of big data/Internet of Things applications that leverage telemetry, elastic cloud computing, analytics and machine learning for the usage of predictive analytics. The company also offers IoT applications like supply chain optimization, predictive maintenance and customer engagement.



**CAEDEN**  
Launch date: 2014

Caeden develops design-focused earphones and wearable devices that can sense and manage stress via tracking of variables such as pulse and physical activity.



**CEL**  
Launch date: 1959

California Eastern Laboratories (CEL) sells and markets compound semiconductor devices from Renesas Electronics Corporation. The company's products include RF components, solid state relays and photo detectors. It also develops Cortet, a connectivity management suite that includes radio services like modules and gateways, software libraries compatible with multiple ecosystems, and the Cortet App, which allows for devices control and cloud solutions.



**CLEAR CHANNEL  
OUTDOOR**  
Launch date: 1901

Clear Channel Outdoor entered the Internet of Things market with Clear Channel Outdoor RADAR, which uses aggregated mobile data to gain information about who is exposed to their advertising displays and how they interact with brands afterward.



**CONTROL4**  
Launch date: 2003

Control4 manufactures wireless home automation products and enables users to virtually control any device in a home or business. The company has developed hardware and software solutions to remotely monitor and automate home theater and television, video, multiroom music, lighting, energy, temperature and security.



**CUBICAL LABORATORIES**

Launch date: 2013

Cubical Laboratories offers solutions to monitor the electrical appliances remotely at households, hotels and office environments. The company produces smart homes controllers and switches, wireless cameras as well as the software and applications necessary to control electronic devices, lightening, fan and curtains from a smartphone or laptop. Users can also get real-time insights, graphs and analytics regarding energy usage data and consumption.



**DELL**

Launch date: 1984

Dell's participation in the Internet of Things industry covers areas from infrastructure solutions to analytics capabilities, as well as security services.



**DENSITY**

Launch date: 2014

Density has developed a small sensor that measures how busy a location is in real-time. The firm uses depth sensing technology, computer vision, and an onboard quad-core processor to anonymously measure and manage entrances and exits through a door. Density system is designed to protect privacy and can be deployed into places a video camera cannot go such as stadium bathrooms, churches, secure corporate offices, elementary schools, and dressing rooms.





**DIGICERT**  
Launch date: 2003

DigiCert provides identity, authentication and encryption solutions for the web and IoT. Its SSL tools and PKI certificates ensure correct authentication of devices as it connects, and protects communication between devices.



**Displio**  
Launch date: N/A

Latvia-based Displio produces a self-standing WiFi-connected digital display. The product shows sections from a range of information options, including email alerts, weather and shipment tracking information.



**EATON**  
Launch date: N/A

Eaton Corporation is a power management company that develops products and systems to manage electrical, hydraulic and mechanical power. These include vehicle automation, aerospace actuators, connectivity and more.



**EMERSON**  
Launch date: N/A

Emerson Automation Solutions develops components and software for automation equipment manufacturers.



**DYSON**  
Launch date: 1993

Founded by James Dyson, this company produces vacuums, air treatment devices, lighting solutions and hand dryers. Dyson Pure Cool Link is an air purifier embedded with connectivity technology that can be controlled from the user's phone, send information to the user's mobile about the quality of the air and report on its own functioning. It also gives insight on data like times the device has been working and levels of pollution throughout the day.



**ECOBEE**  
Launch date: 2007

Ecobee is a smart thermostat enabling users to control their homes' temperature using smartphones, computers, tablets or via voice recognition. The Ecobee device also comes with sensors that recognize the rooms' hot and cold spots and can detect occupancy.



Eggplant Technologies is the developer behind “Move It,” a smart, mobile-connected personal gym. The solution is composed of a smart handle that is interchangeable with four types of training equipment and is capable of detecting 16 different types of exercise. The company provides a mobile app that synchronizes with the equipment and allows users to interact with other people to find workout buddies or challenge friends.



Enlighted manufactures light control platforms for smart buildings. The firm provides sensor technology and data analytics system for energy savings, space utilization, security and more. Its smart sensor can monitor real time occupancy, light levels, temperatures and energy usage, among other things. The solution has been designed for commercial office, education and health care spaces.



Epson is a manufacturer of printers, projectors, scanners, professional imaging, system devices and factory automation products. Besides, the company offers wearable devices such as smart glasses or fitness trackers, point-of-sale products, cameras, home entertainment devices, among others.



Fitbit develops a range of different wearable bracelets that can track activity. The Fitbit app can track daily activity and quality of sleep, record exercise routine stats, and help users organize workouts. The app also adds different features of social engagement and helps with nutrition care by allowing for food logging or weight tracking with a Fitbit-connected scale, Aria. The information is displayed on the user's phone, as well as the bracelets themselves, which can also receive and display phone data such as calendar entries or calls.



FitPay is a proprietary technology platform. It provides contactless payment capabilities for wearables and Internet of Things (IoT) devices.



Five Elements Robotics is a technology company focused on the development of personal and consumer robots. The company is the developer behind DASH, a retail robotic shopping cart. DASH allows users to import their shopping lists from their phones and gathers data from user usage to offer targeted marketing.



**FLEET SPACE TECHNOLOGIES**

Launch date: N/A

Fleet Space Technologies designs, builds and launches a network of nanosatellites to provide global satellite connectivity to the Internet of Things (IoT). It serves the mining, oil and gas resources, precision agriculture, transport and logistics sectors.



**FOOBOT**

Launch date: 2013

Foobot is an air quality monitoring system enabling users to control indoor air pollution. The company's app offers indoor air metrics, outdoor pollution levels at the user's location and home automation features.



**FORESCOUT**

Launch date: 2000

ForeScout Technologies, Inc., is an IoT security technology developer. Their solutions can see which devices are connected to the network without requiring endpoint agents, allowing it also to detect nontraditional IoT devices. The company's solutions integrate with more than 70 network, mobility, IT and security products, allowing for information sharing and operation synchronization.





**FRIENDLY  
TECHNOLOGIES**  
Launch date: 1997

Friendly Technologies is a platform provider offering solutions for smart home, IoT, TR-069, LWM2M, MQTT and OMA-DM device management. The company's software is designed for service providers and those participating in IoT utilities, transportation and smart cities markets.

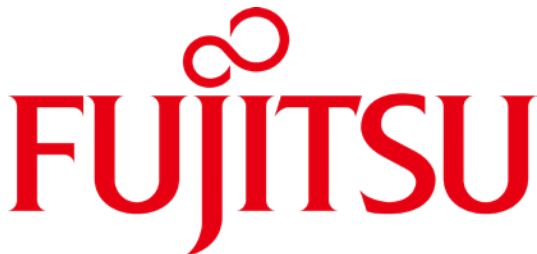


**Frontpoint®**



**FRONTPOINT**  
Launch date: N/A

Frontpoint Security Solutions installs, monitors and maintains security technology offerings, including home security systems that can be controlled remotely with an app.



**FUJITSU**  
Launch date: 1935

Fujitsu is an information and communication technology company offering IoT platforms ranging from enterprise wearable devices and middleware applications to standardized business solutions for customer verticals. Its IoT platforms provide data aggregation and management as well as application development services and device management capabilities. The firm also builds electronic devices and hardware products such as laptops, smartphones and tablets.



**GARMIN**  
Launch date: 1989

Garmin manufactures and designs products for the automotive, aviation, marine, outdoor and fitness markets that are capable of running a GPS. Other products sold by the company include smartwatches, cameras and sensors. The company has developed applications that enable users to manage and control their devices.



**GEMALTO**  
Launch date: 1979

Gemalto designs and manufactures digital security solutions. The company's IoT solutions are mostly aimed to provide reliable connectivity, reliable security and agile monetization frameworks. Gemalto's M2M portfolio is enabling solutions in industries ranging from health care, retail services, smart energy, transportation, logistics and automotive. Besides, their consumer electronics portfolio includes solutions for smartphones, tablets, PC and wearables.



**HCL TECHNOLOGIES**  
Launch date: 1991

IoT WoRKS TM by HCL works to enable organizations to develop IoT ecosystems in order to enhance their connections of things, data and processes. The company's solutions are designed to help businesses to enhance communications between devices and cloud. The company also offers a data analytics platform which allows secure data ingestion, management, and syndication.



**HELIUM**

Launch date: 2013

Helium Smart Sensors are deployable in minutes and built for companies that need to monitor and analyze conditions of interest and importance. The company offers two main wireless smart sensors: the Helium Blue, that measures internal refrigerator temperature and door state and the Helium Green, which measures multiple environmental parameters. In addition, Helium also offers a cloud, which is the control and storage center for the entire distributed smart sensing system.



**Hewlett Packard  
Enterprise**



**HEWLETT PACKARD  
ENTERPRISE**

Launch date: 1939

Hewlett Packard Enterprise offers a group of different solutions that go from cloud, security and big data to mobility infrastructure and the Internet of Things. The company's Universal IoT Platform offers an architecture for businesses to manage and connect heterogeneous IoT devices as well as collect, analyze and monetize data. The solution comes with attributes like application design, API monetization and policy enforcement.

**hiku**



**HIKU**

Launch date: 2012

Hiku is a kitchen device to scan barcodes and recognize voices to add products to shopping lists. Consumers can use it for shopping in-store and online, add planned updates to receive price comparisons and share shopping lists with others.



Hitachi Insight Group is the arm of the Japanese technology firm that focuses on the Internet of Things. The company provides its own IoT platform called “Lumada,” and also develops IoT solutions for smart cities and energy efficiency, as well as industries like health care, automotive and construction.



Honda is primarily known as a manufacturer of automobiles, motorcycles and power equipment. The company is also focused on connecting its cars with solutions like HondaLink, a display audio system that's powered by a user's phone, to access online content.



Honeywell manufactures wireless and scanning technologies used in building, home and industrial applications. The company's solutions are designed to deliver energy efficiency, security and safety. The company also offers software and applications to stay connected and control its devices.



HotSchedules®

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**HOTSCHEDULES**

Launch date: 1999

HotSchedules develops employee scheduling and labor management solutions for the restaurant industry. In 2015, the company introduced its IoT platform, which allows users to capture data, transform it into insights and deploy their own apps. With the platform, a restaurant can connect things like kitchen appliances, payment devices and drive-thru displays into the same platform, gathering data in a single place and allowing for more complete information.



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**HUAWEI**

Launch date: 1987

Huawei Technologies is a telecom solutions provider that offers infrastructure application software, telecommunications networks and devices with wireline, wireless and IP technologies. The company has developed a wide range of IoT devices including phones, PC, tablets, wearables, audio devices and Wi-Fi routers for smart homes.

huami

49

**HUAMI**

Launch date: N/A

Huami is a Chinese wearable device manufacturer that produces fitness trackers and smartwatches. Its products include the Amazfit and Xiaomi wearables.





**HUMAVOX**  
Launch date: 2010

Humavox has developed ETERNA, a wireless charging technology that enables users to recharge their electronic devices from nearly any containing object where they instinctively drop their devices. The company offers solutions for charging headphones, fitness trackers, smart rings, watches and clothing.



**HYUNDAI**  
Launch date: 1967

The Korean automobile manufacturer Hyundai has its own player in the automobile IoT market: BlueLink. The service allows drivers to access a group of different features, from safety tools like automatic collision notification and monthly vehicle health reports to external control features like remote start and stolen car location. BlueLink also provides a destination search solution powered by Google and can connect with Apple Watch and Android Wear.



**IHT SPIRIT SYSTEM**  
Launch date: 2011

IHT Spirit System developed an assessment platform focused on physical education. The company's IoT software solutions allow teachers to access the data of every student and test their performance.



**INFISWIFT**  
Launch date: 2015

infiswift is an IoT-enabled platform designed to connect and manage devices and cloud services. The platform offers multi-layer security for enterprises, real-time device monitoring and data processing and analysis.



**INVENSENSE**  
Launch date: 2003

InvenSense provides MEMS inertial sensors, microphones, software algorithms, sensor development tools and platforms needed for the product creation and sensor integration of IoT-connected devices. InvenSense technology is designed for multiple products including smartphones and tablets, automotive, wearables, drones, and smart remotes for smart TVs.



**JOHNSON CONTROLS**  
Launch date: 1885

Johnson Controls International develops smart buildings, energy solutions, infrastructure and transportation systems. The firm offers products including energy efficiency, building management and automation solutions. In addition, Johnson Controls Smart Equipment offer embedded controls and secure connectivity to help companies improve serviceability.



**Karamba  
Security**

**40**

**KARAMBA**

Launch date: 2015

Karamba develops security solutions for connected cars. The company offers endpoint security for the externally connected electronic control units of connected cars that allows only explicitly permitted code to run through them. Karamba also offers early detection of droppers and malware protection services.



**KEEN™**  
home

**40**

**KEEN HOME**

Launch date: 2013

Keen Home develops home automation hardware and software products. The company's Smart Vent System enables users to control heating and cooling airflows room-by-room. Smart Vents also connects to the internet and to its other components, giving users the ability to manage all functionalities from the Keen Home app.



**kepware®**

**62**

**KEPWARE**

Launch date: N/A

Kepware is PTC's software development business. It works to provide a portfolio of software solutions designed to help businesses connect automation devices and software applications and enable industrial IoT.



Konux provides the industrial IoT market with smart sensor systems designed to measure all kinds of mechanical and geometric parameters such as torque, pressure, force and angle. Konux sensing technologies are combined with a cloud solution that provides customers with real-time data visualization and intelligent data analysis, enabling them to understand their machine problems and make maintenance predictable.



Lenovo develops, manufactures, and markets technology products and services. It offers commercial and consumer personal computers, as well as servers and workstations; mobile Internet devices, including tablets and smart phones; storage and networking products; memory and processors; rack and power infrastructure; and laptops, desktops, and accessories, as well as operating systems, security, and systems management software.



LG Corporation delivers connected products that go from smartphones, tablets and smartwatches to TVs and home audio devices. The company also works with affiliated companies in telecommunication services such as: LG N-sys, LG CNS and LG U.



**LIFX**

**25**

**LIFX**

Launch date: 2012

LIFX is a WiFi-enabled LED light providing users the ability to control their home or office lights with any enabled device, such as a smartphone, wearable or a smart home device. The multi-colored smart light comes with an app offering features like a music visualizer, themes, scenes and schedules.



**LimeBike**

**49**

**LIMEBIKE**

Launch date: N/A

LimeBike is a dock-less bicycle sharing company. Its app enables users to locate bikes and scan to unlock them.



**23**

**LOCAL MOTORS**

Launch date: 2007

Local Motors is a technology company that works on the development of vehicles. The company's products include a 3D printed car and Olli, an autonomous electric shuttle. Olli uses sensors and data to understand its environment and can help in corporate or municipal transportation needs. The shuttle can also work like a taxi with the user determining a pickup location through the app for later traveling and paying within said app.





**LOFELT**

Launch date: 2016

Lofelt develops “The Basslet,” a wearable watch-size subwoofer. The device delivers beats and basslines directly into the user’s body. The Basslet works next to a sender that can be connected into devices like smartphones, gaming consoles or VR headsets.



**LOGITECH**

Launch date: 1981

Digital products provider Logitech has developed a range of IoT solutions mainly focused on smart homes. The company’s portfolio includes several products that allow users to remotely control their connected devices and manage their home’s lighting, music, locks, thermostats and more. The company’s products include smart remotes, connected security cameras and smart buttons.



**LOGMEIN**

Launch date: 2003

LogMeIn provides software as a service and cloud-based remote connectivity services for collaboration, IT management and customer engagement.



**LUMO**  
Launch date: 2011

Lumo develops body tracking technology, including clips that attach to running shorts or capris to measure cadence and speed, giving the runner instant feedback through earphones. Lumo also offers clip-on devices that monitor posture.



**LUTRON**  
Launch date: 1961

Lutron offers a family of IoT devices including lights, shades and temperature controls for a room or a whole house. The tools can also adjust automatically to prevent excessive energy consumption.



**MARVELL**  
Launch date: 1995

Marvell is a fabless semiconductor company with experience in microprocessor architecture and digital signal processing. The company develops platforms for storage solutions as well as wireless and networking products between others.



Mastercard is a technology company developing solutions for the payments industry, with payment processing as its core business. The company develops different payment products, including the use of NFC technology, eCommerce applications and security products. Mastercard is also engaged in the development of Internet of Things technology usage into payment applications.



Matternet is an autonomous drone logistics platform developer with its own drone, cloud and usage stations. The company provides aerial delivery transport for healthcare, eCommerce and logistics organizations, along with serving individual customers. The platform is designed to be used in densely populated urban areas which often present delivery challenges.



Microsoft develops a broad range of software products, from Windows to Skype and from Bing to Office. The company also develops devices like Lumia and Xbox, as well as the Azure IoT Suite, a platform that allows the user to connect and scale projects, as well as analyze the data generated by it.



**MISFIT**

Launch date: 2011

Misfit manufactures wearable and smart home devices. The company offers smartwatches, fitness trackers and smart accessories. Misfit also offers IoT-based applications such as the Misfit Link App, Home App and Cycling app, which help users better manage wearables from their smartphones.



**MOCANA**

Launch date: 2002

Mocana's IoT security platform helps companies secure and monitor their devices and gateways in a complex, multi-vendor environment. The device-to-cloud platform functions as a real-time operating system (RTOS) for wired and wireless networking settings.



**MOEN**

Launch date: N/A

Moen has developed a customizable shower with personal device integration enabling users to control time and temperature. Once the U by Moen shower is connected to WiFi and the cloud, users can control their showers using their smartphones, Alexa or the shower controller.

moov

22

**MOOV**

Launch date: 2013

Moov is a water and dust-proof connected wristband designed for sports, including cycling, swimming and boxing. The wearable device can also be used in coach mode, allowing for a voice-guided workout and different metrics, such as amount of repetitions or landing impact. The device can also track 3-D movements, allowing it to teach the user more effective exercise techniques, and permits for social engagement and competition with connected friends.

NESPRESSO

26

**NESTLÉ NESPRESSO**

Launch date: 1986

Coffee machines and capsules provider Nespresso has developed a connected coffee machine. The Nespresso Prodigio is a Bluetooth connected coffee machine which enables users to manage capsules stock, program coffee times and receive alerts for machine maintenance and care, everything done from their smartphones through the Nespresso app.

nest <sup>TM</sup>

49

**NEST**

Launch date: 2010

Nest is a technology company focused on smart home tools. Nest products include a thermostat that learns from user preferences, a smart smoke-CO2 alarm and a camera that tracks the user's phone location to know when to turn on. The company's devices can communicate with the user's device through the Nest app in order to either provide information or be externally controlled.





**NETATMO**  
Launch date: 2011

Netatmo is a smart home company, developing connected consumer electronics. Netatmo designs the mechanics, electronics and embedded software of all its products and also creates the mobile and web applications.



**NEURIO**  
Launch date: 2005

Neurio is a home intelligence technology company that gives homeowners the ability to monitor their homes. The company's Home Energy Monitor allows homeowners to track their power use in real time, see bill forecasts, set up budgets, get energy saving tips and more.



**NFC RING**  
Launch date: 2015

NFC Ring provides a wearable ring that can be used to make payments, lock or unlock doors and devices or share and transfer information.



**NISSAN**

Launch date: 1933

Nissan, the Japanese automobile manufacturer, offers embedded IoT technologies in their cars through a service called NissanConnect. The solution allows drivers to access a group of different features that includes access to different apps such as Google and Facebook as well as security tools like stolen vehicle locating and roadside assistance. The solution can also control external features of the car, such as locking doors, triggering horns and controlling the air conditioning.

**notion**



**NOTION**

Launch date: 2013

Notion develops sensors that allow homeowners to monitor their homes remotely. Notion's device can track a group of variables, such as when a door is open, the temperature goes too low or too high, and there is a water leak. Users can also monitor their homes from their phones and receive notifications.



**nucleus**



**NUCLEUS**

Launch date: 2013

Nucleus is a smart home wireless intercom system designed to allow users to make calls from room-to-room or home-to-home. Each Nucleus account has a unique Home and Remote code enabling them to establish secure connections between devices. The Nucleus device connects to the internet via Wi-Fi or Ethernet and is Amazon Alexa-enabled.



**NUMEREX**  
Launch date: 1992

Numerex provides a portfolio of managed end-to-end Internet of Things solutions including smart devices, network connectivity and service applications enabled to address the needs of a wide spectrum of vertical markets including Waste Management, Manufacturing & Distribution, Public and Personal Safety, Oil & Gas, Transportation, Emergency Management and Commercial & Residential Security.



**NUZZLE**  
Launch date: 2014

Nuzzle has developed a GPS collar that enables owners track their dogs. The GPS collar features 24/7 connectivity via dual-band 3G cell, embedded SIM card and Bluetooth. In addition, the GPS collar offers impact detection, temperature monitoring and activity monitor. Owners can also use a mobile app to track their pets.



**OMNITRACS**  
Launch date: N/A

Omnitracs, LLC, is a trucking solutions provider. It offers transportation technology and insights, with solutions designed to assist with compliance, safety and security, productivity, telematics and tracking, transportation management, planning and delivery, data and analytics and professional services.



OnePlus is a manufacturer of waste container fullness and control systems. The company also produces technology that can regulate who can access the system and provide users with a cloud-based software from where they can access information.



Optimal+ is a data analytics company offering end-to-end solutions designed to improve quality, yield, and productivity for semiconductor and electronics manufacturing.



Osram implements high-tech devices and smart solutions for lighting technology in the automotive, entertainment and health sector as well as private consumers. The company also offers smart home products and is developing smart city solutions.

# OSSiA

24

**OSSIA**

Launch date: 2008

Ossia is the developer of Cota, a wireless power charger that can power equipped devices. The solution takes energy from a single source and transmits it through a net of antennas to a power receiver within a 30- foot radius. The solution also allows for energy saving, as the system turns off once the devices are off the range or hibernating.

# Petnet<sup>io</sup>

42

**PETNET**

Launch date: 2012

Petnet offers the SmartFeeder, an automatic feeder for cats and dogs that enables users to manage feeding times, portion sizes and food supply. The SmartFeeder uses sensors to measure portions based on a pet's age, weight and level of activity. Users can control their pets' feeding from their smartphones.

# PetPace™

Monitoring your pet's health

38

**PETPACE**

Launch date: 2012

PetPace offers remote pet monitoring services through a wireless smart collar, which collects a pet's vital signs and behavior patterns. PetPace comes with an integrated Health Monitoring Service to continually analyze the collected health data and send notifications to the pet owner's smartphone in case of emergencies.



**PHILIPS**

Launch date: 1891

Philips' IoT-enabled lighting product, Hue Personal Wireless Lighting, is a connected lighting solution designed to enable users to manage their lighting system from their smart devices. Hue uses a system called The Bridge that connects the smartphone to the Philips Hue lights via Wi-Fi. The Bridge offers different types of smart lights and gives users the ability to create timers, control brightness, play with colors and synchronize lights to music, TV and games.



**POLAR**

Launch date: 1977

Polar is a manufacturer of sports training technologies. Among other products, Polar has deployed GPS-enabled bike computers, fitness and running watches, as well as heart rate monitors and performance trackers. Their devices are designed for any activity ranging from swimming, cross-training and yoga to tracking user's daily activity and calorie consumption.



**RACHIO**

Launch date: 2012

Rachio develops a smart sprinkler device that uses weather prediction to ensure more efficient usage of water. Rachio devices can adjust their functioning to the characteristics of the yard where it's working or the changing seasons. It is connected to a mobile app that not only allows for external control of the sprinklers, but also delivers information about precipitation, watering and the yard's health.





**RAY ENTERPRISES**

Launch date: 2012

Ray has developed a smart touch-screen remote that enables users to control all their devices. The remote supports a wide range of entertainment devices including TVs, cable and satellite providers, streaming devices, sound bars, and DVD players.



**redhat**



**RED HAT**

Launch date: N/A

Red Hat has a portfolio of secure products and services such as cloud storage and operating system platforms along with middleware, applications and management solutions. It also provides customer support, training, implementation and consulting services.

**Rockwell  
Automation**



**ROCKWELL AUTOMATION**

Launch date: 1903

Rockwell Automation develops industrial automation and information technology products. Its Connected Enterprise capability enables industries to connect, monitor and optimize devices and processes. The company's Industrial IoT solution integrates networks and creates an integrated production platform that can enable smart manufacturing.

The SageGlass logo features the brand name in a dark grey, sans-serif font on a bright yellow rectangular background.

45

**SAGEGLASS**

Launch date: N/A

SageGlass offers electronically tintable glass — known as dynamic or electrochromic glass — for windows, skylights and curtain walls. The glass tints automatically or on demand to control sunlight levels, without need for shades or blinds.



**samsara**

44

**SAMSARA**

Launch date: 2015

Samsara offers internet connected sensor systems designed for diverse environments from energy monitoring to asset utilization to vehicle tracking. Its traditional sensor model is combined with an integrated, software-centric solution enabled to capture hundreds of metrics, bringing visibility and insight into any operation.

The Samsung logo consists of the word "SAMSUNG" in white, bold, sans-serif capital letters, centered within a blue oval.

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**SAMSUNG**

Launch date: 1938

Samsung's business expands through many industries, from heavy industry to chemical to its more well-known face: Samsung Electronics. The company develops wearable devices, smart TVs and some of the most classic connected devices: smartphones. Samsung has also begun developing smart home applications, from sensors and hubs to connected appliances.



**SATO GLOBAL  
SOLUTIONS**

Launch date: 1940

SATO Global Solutions (SGS) develops IoT solutions, including data-based advice for business operations and customer experience improvements. The company co-founded the Acuitas Digital Alliance which develops cloud-based IoT solutions to help retailers use Big Data and IoT.



**SEAT**

Launch date: 1950

SEAT (or Sociedad Española de Automóviles de Turismo) is an automobile manufacturer headquartered in Martorell, Spain. The company was founded in 1950 and is currently an owned subsidiary of the Volkswagen Group. SEAT has been researching connected car developments with companies such as SAP and Samsung for solutions like parking reservations and payments as well as digital key sharing.



**SECTORQUBE**

Launch date: 2011

SectorQube has developed Maid, a smart oven that sets the time and temperature according to number of servings and a user's personal preferences. Maid comes with an intelligent personalization engine that learns user preferences and is connected to an online recipe store. The oven can be controlled and managed by using its touchscreen or through voice and gestures.



Seebo offers an integrated platform intended to help manufacturers create, develop, analyze, integrate and build IoT products.



Sensoria develops wearables that track and communicate data like body weight, eversion and in-footwear pressure. The data is analyzed and displayed in the user's mobile device.



Sentry is an all-in-one home controlling solution helping users make their homes safer and smarter. The device comes with a 120-degree wide-angle camera and sensors that track environmental health including temperature, humidity, air quality and weather. Users can connect and control other smart devices and get mobile notifications whether any unusual activity or change in the home environment is detected.



Skyhook is a global location network that, by georeferencing mobile users, allows companies to deliver more personalized content. The company's location engine is based on Wi-Fi data that is combined with information from GPS, cell towers, IP addresses and device sensors, and its services are suitable for different industries, including app development, advertising, device manufacturing and wearable design.



SmartDrive offers solutions for corporate fleets. Its offerings include security programs, an open analytics platform, and transportation intelligence intended to improve safety and identify opportunities for greater operational efficiency.



Software AG is a software developer whose solutions apply to a range of different industries, including IoT, banking, energy, government and retail. The company's IoT solutions include Terracota, a data management platform, location-based marketing capabilities, location analytics and manufacturing products such as equipment predictive maintenance energy theft detection.



Somfy offers outdoor home products like smart gates, doors, window shutters and alarm systems that can be managed from a mobile app.



Sony Corporation products range from categories such as television and audio/video solutions to semiconductors, medical equipment and digital imaging developments. The Japanese company has introduced IoT technology in different equipment they develop, starting with their mobile and tablet devices and now including smart TVs and wearable products like watches or wristbands.



Sophos provides IoT security services that work to protect devices, data and key processes from malicious malware code and dangerous cyber activity. Among other services, the company offers endpoint, encryption, email, web, mobile, network security and UTM products, as well as a range of tools for home users.



# SPIN



**SPIN**

Launch date: N/A

Spin is a dockless electric scooter rental company that is currently operating in 11 cities and on six campuses.

# STATSports®



**STATSPORTS**

Launch date: 2007

STATSports provides sports science and performance analytics. Its performance tracking systems can calculate more than 50 metrics in real time and store all data into a cloud infrastructure. The STATSports Apex tracking device connects via Bluetooth LE to multiple devices, including heart rate sensors, EMG shorts, smart watches and tablet devices.

# striim



**STRIIM**

Launch date: 2012

Striim is a real-time data integration and streaming analytics software platform. The company integrates IoT data to provide data analytics and protect users against cybersecurity threats. Striim for IoT combines real-time sensor data with other enterprise data from databases, log files, message queues and cloud environments.



Swatch produces smart watches and other wearables. The company's Touch Zero One smartwatch was specially designed for beach volleyball players and gives users the ability to calculate steps, track calories burned, set goals and check progress. Users can also connect Swatch devices to their smartphones and use an application to check performance insights.



Symantec Corporation provides cybersecurity services through its anti-virus software Norton. It also offers integrated solutions to defend against attacks across endpoints, cloud and infrastructure. Symantec Corporation has also developed a router to which IoT-enabled devices can securely connect in a single action.



Tag Heuer's smartwatch collection has been manufactured in collaboration with Google and Intel. The TAG Heuer Connected Modular 45 collection offers customized designs, GPS, time management tools and water resistance. The device is also connected to a mobile app.



**TELETRAC NAVMAN**  
Launch date: N/A

Teletrac Navman offers GPS-based fleet management and optimization products and services. Its products include real-time vehicle tracking, electronic logging, communications and analytics designed to enable companies to monitor, measure and improve operational costs and efficiencies.



**TERADATA**  
Launch date: 1979

Teradata develops a range of solutions that apply to the Internet of Things industry, with options like Teradata Unified Data Architecture, which allows businesses to organize and leverage data, or Teradata Aster Analytics, which allows for data visualization and analytics.



**TILE**  
Launch date: N/A

Tile provides devices, a network and mobile app that use Bluetooth technology to assist users in locating keys, wallets, phones and other items.



Token offers a biometric-based wearable ring designed to make payments and provide authentication in place of ID credentials, internet passwords or at physical locations. Its product also can be used with specialized company-made locks to unlock home or compatible car doors.



TomTom designs and develops navigation and mapping products for cars, motorcycles, scooters and trucks and provides fleet management solutions. The company also offers GPS smartwatches and accessories for running, fitness, golf and other activities.



Tovala has designed a Smart Oven that can steam, bake, broil and heat prepackaged meals that the device, after scanning the code they come with, will know how to cook. The oven can also connect to the user's phone using its own app, which allows for tracking of the cooking time.



**TOYOTA**  
Launch date: 1987

Toyota, the Japanese car manufacturer, has integrated IoT technology into their automobiles. Entune, the service the company developed for connecting mobile devices with cars, allows drivers to access their playlists or use voice recognition commands. Toyota also delivers security-connected solutions that can assist in cases of collisions, needing emergency assistance or locating stolen vehicles.



**TRACKX**  
Launch date: 2013

TrackX is a software solutions provider. Its products focus on asset tracking, inventory management and supply chain solutions, all using a cloud-based asset tracking platform, GPS, RFID and sensors.



**TRITONWEAR**  
Launch date: N/A

TritonWear develops wearables that allow coaches and their athletes to track performance through their mobile devices in real time.

TRUSTONIC



**TRUSTONIC**

Launch date: N/A

Trustonic is a device security company that provides security for connected devices, associated services and applications.



**UBIGREEN**

Launch date: N/A

Ubigreen is a technology company that develops turnkey solutions. Its offerings include web apps to monitor and control energy use or other operations in a building or other site.

 **UNDER ARMOUR.**



**UNDER ARMOUR**

Launch date: 1996

Under Armour products include apparel developed for controlling body heat and intelligent items concentrated on tracking the user's performance. The company's interest in IoT applications pushed the acquisitions of fitness apps such as MapMyFitness and MyFitnessPal.



view™



**VIEW**

Launch date: 2007

View Dynamic Glass' window tint tech helps to control the temperature inside a room, saving energy and improving comfort. The device can adjust automatically to the time of the day, the angle of the sun and weather conditions, taking into account the geolocation of the building and its architectural design. The solution also provides data for the user to track energy efficiency.

VIMOC  
Technologies



**VIMOC**

Launch date: 2012

VIMOC Technologies is a platform provider for Landscape-Computing, enabling the deployment of solutions for the Internet of Things and smart city implementations. The platform is provided through a scalable API that facilitates sensory data access with built-in statistical analysis and a workloads distribution framework.

 vinli™



**VINLI**

Launch date: 2014

Vinli is a small device that can be connected to a car to provide services including connectivity and apps. Using a 4G LTE network, Vinli can also be used as a Wi-Fi hotspot to allow passengers to stream movies or download games. The company also offers apps covering security, social engagement and other utilities, such as sending notifications if a collision occurs.

# VISA



**VISA**

Launch date: 1958

Visa is an American multinational financial services company focused on the transfer of electronic funds. The company's portfolio includes Visa-branded credit, debit, commercial, prepaid, mobile and money transfer. VisaNet is the technology behind the company's payment processing solution, which provides its services at a worldwide level.

# vivint. SmartHome™



**VIVINT**

Launch date: 1999

Vivint is a smart home services provider focused on connected home automation and home security cameras and devices, all controllable by an app.

# WEBROOT®



**WEBROOT**

Launch date: 1997

Webroot works on endpoint security and threat intelligence services, providing solutions for businesses and individuals. Webroot developed its own IoT cybersecurity tool, and also produces its BrightCloud Threat Intelligence for IoT Gateways.



**Western  
Digital®**



**WESTERN DIGITAL**  
Launch date: 1970

Western Digital is a data storage company using both the cloud and data center storage. It provides clients with software as well as hardware like hard drives and storage devices.



**Whistle**



**WHISTLE LABS**  
Launch date: 2012

Whistle Labs is an intelligent device manufacturer offering pet owners a smart GPS tracker to monitor pets' locations, activity and rest cycles. The Whistle app helps prevent lost pets by sending users notifications when a pet leaves a designated "safe space."

**WIS@key**



**WISEKEY**  
Launch date: 1999

WIS@Key is an information security and identity management company that works on data protection and identification, and authentication of people and objects over physical infrastructures, networks and the internet. The company focuses on the IoT industry and developed a security platform covering identity management, transaction assurance and process integration.



**XIAOMI**

Launch date: 2011

Xiaomi manufactures and develops hardware, software, and internet services. Xiaomi offers a range of internet connected devices that includes smartphones, TVs, notebooks, wearables, drones, earphones and more. In addition, the firm develops mobile applications such as MiTalk and an operating system called MIUI.

**spend.**



**X LAB**

Launch date: 2016

X Lab is the company behind Spendwallet, an electronic wallet that can store the user's credit, debit and gift cards. The device can also be synchronized with users' phones.

**xped**



**XPED LIMITED**

Launch date: 2008

Xped Limited is an IoT technology business. Among others services, the company has developed the Auto Discovery Remote Control (ADRC) platform, which is designed to enable users to connect, control, monitor and manage their devices and appliances from a single app.



**YOKOGAWA**  
Launch date: 1915

Yokogawa's portfolio of solutions includes cloud-based data sharing services for data collaboration for supply-chain collaborations and optimization. It also offers cybersecurity solutions.



**ZEBRA TECHNOLOGIES**  
Launch date: 1969

Zebra Technologies develops tracking technology and solutions that allow companies to know where and in what conditions things are. Zebra products cover a wide range of devices and software, from mobile computers and printers to location solutions and RFID bands. Zebra's technology can also be used in different industries like health care, manufacturing and retail.



**ACLARA**  
Launch date: N/A

Aclara Technologies LLC provides smart infrastructure solutions (SIS) for water, gas and electric utilities worldwide, including meters and various communications networks.



**Activity**  
Connecting with intelligence



**ACTIVITY**  
Launch date: 2010

Activity's ThingPark is an IoT-enabler platform for the deployment and management of LPWA networks. The software solution is aimed at allowing communication service providers, device manufacturers and application suppliers to develop IoT applications in vertical markets such as smart cities, energy and utilities or industries.



**ADVANTECH**  
Launch date: 1983

Advantech provides embedded M2M/IoT module integration services and wireless solutions for M2M communication including Bluetooth, WiFi, 3G/LTE and GPS modules.





**AERIS**

Launch date: 1992

Aeris Communications is a technology provider and a cellular network operator delivering comprehensive IoT / M2M services to the automotive, energy, transportation, retail, and healthcare industries. Aeris offers a complete stack of technology from an online management portal to an application enablement platform and cellular connectivity networks.



**AEROHIVE NETWORKS**

Launch date: N/A

AeroHive Networks, together with its subsidiaries, designs and develops cloud networking and enterprise Wi-Fi solutions. These include hardware, software-as-a-service (SaaS) subscriptions and tiered maintenance and support services.



**AFERO**

Launch date: 2015

Afero offers an IoT Platform as a Service solution that allows for the development and deployment of connected devices. The system is powered by Afero Cloud, which provides services for the development and operation of connected things. The company also helps developers with processes like monitoring, management and prototyping.



**AGILITYIO**  
Launch date: 2011

AgilityIO offers software solutions to translate ideas and products into digital and Internet of Things (IoT) products. The company handles software development, UX/UI design and product management through the process of idea conception to retail.



**AlertMedia**



**ALERT MEDIA**  
Launch date: N/A

AlertMedia provides enterprise customers with monitoring services and a communications platform for regular and emergency messaging.



**ALTOROS**



**ALTOROS**  
Launch date: 2001

Altoros is a software and open-source development company providing hardware, software and guidance to clients. It uses Java/.NET/Ruby architecture to create cloud-native IoT applications for companies, and offers Smart Baggage Tracking software for private customers.



AMAZON

Launch date: 1994

Amazon Web Services has developed a cloud computing platform providing services such as application hosting, databases and content delivery. The company's IoT consists of a cloud platform that allows businesses to connect devices to Amazon services as well as to other devices, secure and process data, and enable applications to interact with those devices.



AMDOCS

Launch date: 1982

Amdocs provides software and services to communications and media companies. Its solutions are designed to enable digital and network transformation. The company offers a suit of IoT solutions, including Amdocs Connected Home, a cloud-based solution delivering monitored smart home security services. In addition, Amdocs IoT Services Enablement Platform enables IoT ecosystem players to offer integrated and easy-to-activate global consumer and industrial IoT services.



ARM

Launch date: 1990

ARM designs energy-efficient processors and related technologies for digital electronic products ranging from sensors to servers. The company has developed the ARM mbed IoT Device Platform, a solution that provides open standards based on a common platform and an ecosystem for IoT development and connectivity to make IoT work at scale, from device to cloud.



Armis Security is an agentless IoT security solution that allows enterprises to see and control any device or network.



Arrayent offers an IoT platform that enables manufacturers to transform traditional products into connected devices. It also offers an end-to-end solution that offers secure access to customer and product data.



Aruba Networks develops operating systems for both wired and wireless network infrastructure, provides remote access services and offers data security solutions.



**ARVIEM**

Launch date: N/A

Arviem is an independent global cargo tracking and monitoring service provider. Its IoT monitoring device mounts on cargo containers and communicates over phone or satellite networks.



**at&t**



**AT&T**

Launch date: 1976

AT&T provides a wide range of IoT solutions, including connectivity of devices and development platforms that can be applied to industries from vehicles and smart cities to health care and machinery.



**AUTODESK**



**AUTODESK**

Launch date: 1982

Software developer Autodesk offers Fusion Connect, an IoT Cloud Service, to connect, analyze and manage remote products. The software provides its customers analytics and insight automatically extracted from their IoT devices, enabling them to identify products performance and failures.



Avnet provides organizations with component and services solutions for IoT. It helps companies in deploying IoT and adding new functionalities, such as security and connectivity. Avnet offers components for industries such as automotive, home automation, energy, industrial and wearables, among others.



Ayla Networks is an IoT platform provider. Its platform is comprised of three elements: Ayla Embedded Agents, Ayla Cloud Services and Ayla Applications Libraries, which together allow devices to connect to the cloud and applications while providing tools to manage, provision and analyze IoT deployments.



Bastille offers an enterprise security solution designed to include full-spectrum scanning of corporate airspace. Its solution works to detect wireless risks and use machine learning and behavioral analytics to offer companies a more informed view of wireless environments, complementing Wi-Fi and traditional security architectures.



**BELDEN**

Launch date: 1902

Belden manufactures and sells a comprehensive portfolio of cable, connectivity and networking products for the transmission of signals for data, sound and video applications. Its products are designed for a variety of markets including industrial, enterprise, broadcast, transportation, energy and consumer electronics.



**BELKIN**

Launch date: 1983

Belkin offers internet networking products including Ethernet and wireless adapters and wireless routers. Besides developing connectivity solutions, the company has created WeMo, a Wi-Fi-based home automation network that includes smart lighting systems, Wi-Fi-connected cameras, smart plugs and light switches.



**BITREACTIVE**

Launch date: 2011

Bitreactive offers a visual programming tool enabling Java developers to program embedded software for IoT devices. The firm serves clients in logistics, telematics, automotive, oil and gas, home automation, smart energy, smart cities and building control industries.





**BOSCH**

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**BOSCH**

Launch date: N/A

Bosch is a global supplier of technology and services.



**BROADCOM®**

73

**BROADCOM**

Launch date: 1991

Broadcom is a provider of semiconductor technology. The company is primarily focused on wired infrastructure, wireless communications, enterprise storage and industrial markets.



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**CA TECHNOLOGIES**

Launch date: 1976

CA Technologies supports companies' transitions to use smart technology, and monitors, manages and secures clients' information technology (IT) infrastructure and applications.



**CALAMP**

Launch date: 1981

CalAmp provides communications devices, cloud platforms and software applications. Its IoT cloud enables companies to collect, monitor and report data and intelligence from remote assets.



**Cambium Networks**



**CAMBIUM NETWORKS**

Launch date: 2011

Cambium Networks is a provider of wireless broadband point-to-point and point-to-multipoint platforms. It offers sustainable communication networks for companies, enterprises, governmental and military agencies, and the firm's services also include network monitoring, measurements and analytics.



**CENTRI**

Launch date: N/A

CENTRI focuses on IoT security. Its technology is designed to integrate into organizations' exiting applications and services in the cloud, data centers, connected devices and products to secure the organizations' data. Its solution offers tools including encryption and the establishment of trusted devices.



**CHRONICLED**

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**CHRONICLED**

Launch date: N/A

Chronicled is a technology company using blockchain and the Internet of Things (IoT) for supply chain solutions. It offers a decentralized protocol and network, and serves the pharmaceutical, commodities and precious metal and mineral verticals.



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**CISCO**

Launch date: 1984

Cisco develops internet protocol–based networking technologies. Their products include routing and switching devices, home networking technology, IP telephony, optical networking, security, storage area networking, and wireless technology. Cisco also provides technologies covering connectivity, security, software and data management.



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**CLEARBLADE**

Launch date: 2007

Clearblade is a platform for the industrial Internet of Things that enables developers to engineer and run real-time, scalable IoT applications. Deployable in any vendor cloud, on-premise or in hybrid environments, ClearBlade allows companies to build Enterprise IoT solutions that make streaming data actionable by combining business rules and machine learning with visualizations and integrations to existing business systems.

# cloudera



**CLOUDERA**  
Launch date: 2008

Cloudera provides end-to-end data management services including a data storage and analysis platform. It provides and supports Apache Hadoop-based software to businesses.



# COMCAST



**COMCAST**  
Launch date: 1963

Comcast is a media and technology company. The company provides customers with video, high-speed Internet and phone services under the name of XFINITY. The company also offers XFINITY Home, a platform that integrates the user's smart home devices into one personalized platform.

# Comfy



**COMFY**  
Launch date: 2012

Building Robotics is the developer of Comfy, a service that allows office workers to change the ambiance of their workplace. Workers can personalize temperature, lighting, window tint and more. Changes can also be applied in specific areas, allowing each worker to adjust conditions of their workplace without bothering others.



Commscope designs, builds and manages wired and wireless networks. Their services include incrementing bandwidth and existing capacity, improving network performance, increasing energy efficiency and the simplification of technology migration.



Covisint is a cloud platform for the development of identity and IoT applications that enables customers to identify, authenticate and connect networks of people, processes, systems and things.



CrowdOptic provides middleware for wearables that allows enterprises to manage wearable computing devices in the field from a single platform.



**CYPRESS**  
EMBEDDED IN TOMORROW™

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**CYPRESS**

Launch date: 1982

Cypress manufactures semiconductors and electronic products for the automotive, industrial and consumer markets. Among other products, the company develops PSoC-programmable, system-on-chip solutions, capacitive touch-sensing controllers, Bluetooth Low Energy (BLE) and USB connectivity solutions.

**DATASTAX**

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**DATASTAX**

Launch date: N/A

DataStax, Inc. provides database software and data management. Its solutions include a distributed cloud database built on Apache Cassandra architecture and designed for hybrid cloud. DataStax's offerings aim to support management and analysis of large amounts of time- and sensor-based information.



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**DAVRA**

Launch date: 2011

Davra provides organizations with an AEP platform for the development of IoT applications. The platform has been designed to control all elements of the IoT Edge Gateway.



**DeviceHive**

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**DEVICEHIVE**

Launch date: 2012

DeviceHive is an IoT data platform. The company's platform enables device integration and offers services to connect smart devices to public and private clouds. The platform collects and analyzes data from devices such as sensor networks, smart meters, security systems, telemetry, industrial or smart home devices.

**DEVICE  
INSIGHT**

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**DEVICE INSIGHT**

Launch date: 2003

Device Insight has developed a IoT platform solution called CENTERSIGHT® that offers tools to monitor IoT and M2M devices. The platform provides operating data insights and analytics, error reports, machine configuration features, alarming and more. The CENTERSIGHT® platform can be used in the following markets: industry & automation, connected products, telematics & fleet management and energy & smart city.



**DeviceSolutions®**  
*Imagination. Realized.*

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**DEVICE SOLUTIONS**

Launch date: 2003

Device Solutions provides solutions for three main areas: engineering consultancy, testing and certifications of products for network providers and its own service, Cellio. Cellio is an end-to-end solution that connects, computes and communicates information from the IoT. It is made from sensors, a cellular communication gateway and cloud-based software.





**DIGI INTERNATIONAL**

Launch date: 1985

Digi International develops M2M and IoT connectivity products such as embedded modules, gateways, routers and USB and serial connectivity devices. The firm offers remote device managing solutions and wireless design services. Digi International's products are designed for energy, smart cities, medical, industrial, retail and transportation markets, among other industries.



**D-LINK**

Launch date: 1986

D-Link offers networking solutions as well as Smart Home ecosystems. Their products include surveillance cameras and recording devices, networking tools including routers and extenders as well as automation solutions.



**ELECTRIC IMP**

Launch date: 2011

Electric Imp offers an Internet of Things platform that securely connects devices with cloud computing services. The platform helps manufacturers to manage and quickly scale their connected products and services to millions of users. In addition, the solution enables users to monitor and update products in the field at any time and have access to real-time manufacturing insights.



Ericsson's Internet of Things solutions cover a wide range of capabilities and functions including service enablement, data analytics and billing, data connectivity, and standardized APIs. Ericsson's products include its Smart Metering as a Service, an end-to-end automatic meter and data management solution.



Eseye is a global provider of machine to machine (M2M) cellular connectivity for the Internet of Things (IoT). It aims to simplify enterprises' global device deployments.



Etisalat is a telecommunications company offering coverage of 3G and 4G mobile technologies, and is currently working with 5G services. The firm offers machine-to-machine (M2M) solutions and controlling and monitoring services for both government and enterprises.



Eurotech researches and develops connected hardware. It supplies products such as computer boards, modules, computer devices and systems, and offers software to create machine-to-machine (M2M) and IoT applications.



Filament provides blockchain hardware and software solutions for enterprise and industrial Internet of Things (IoT). The solutions enable secure connections, allowing devices and machines to safely interact and transact value.



Flexera Software develops software licensing, compliance, cybersecurity and installation solutions designed to help application producers and enterprises manage application usage and increase security. The company's FlexNet Producer Suite for intelligent device manufacturers is a part of a strategic solution for application usage management.



**FLEX LTD.**  
Launch date: 2004

Flex designs, manufactures and distributes IoT products and offers a range of aftermarket services. Flex services include prototyping, design, manufacture and logistic distribution, as well as its retirement of the market. The company also offers its expertise in a range of products from sensors and connectivity to security and software.



**FOGHORN**  
Launch date: N/A

FogHorn Systems is a multi-tier Internet of Things (IoT) application deployment platform that bridges information technology.



**GENERAL ELECTRIC**  
Launch date: 1892

General Electric is rolling out IoT tools for a range of industries that includes automotive, aviation, chemical, food and beverage, healthcare, oil and gas. Predix, one of the company's main IoT solutions, is an operating system and platform for building applications that connect to industrial assets, collect and analyze data, and deliver real-time insights.

# Globetouch



**GLOBETOUCH**  
Launch date: 2010

Globetouch provides connectivity, management and deployment services for M2M and IoT solutions. The company offers GConnect, a platform enabling IoT connectivity through CloudSIM technology. The company's GControl platform provides IoT connectivity management tools to launch and manage IoT services.



**GOOEE**  
Launch date: 2014

Designed for residential, commercial, retail, hospitality and industrial applications, Gooee has developed an enterprise scale IoT lighting ecosystem which provides sensing, control and communication components enabled to integrate with an enterprise scale cloud platform for lighting manufacturers to 'connect' to the IoT.



**GOOGLE**  
Launch date: 1998

Google Inc. develops a family of technology products that go from the known search system, desktop tools and operating systems to communication hardware, payment solutions and wearable devices.



# Hologram

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**HOLOGRAM**

Launch date: 2013

Hologram is a platform for building IoT products with a focus on cellular. The cloud-friendly Hologram Cellular Platform enables users to connect devices to the internet. The company also offers software that allows users to talk to their devices, route incoming and outgoing messages, and open up secure PPP sessions via secure API.



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**IBM**

Launch date: 1911

IBM develops an array of solutions among industries such as analytics, commerce, security, cloud and mobile. IBM's Watson IoT platform extends the power of cognitive computing to the Internet of Things. The platform enables the connection of devices and the application of cloud-based services like device management, predictive and real-time data analytics or information management.



# IBOT

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**IBOT**

Launch date: 2006

iBot Control Systems is a research and development company. It provides a platform and other software intended to help manufacturers and other businesses use the IoT.



**IMPINJ**

Launch date: 2000

Impinj has developed a platform comprised of hardware and software using AIN RFID to wirelessly connect IoT. The platform provides businesses with real-time insights about their connected devices, and the company also offers gateways and reader chips.



**INFERNA**

Launch date: N/A

Infinera Corporation provides optical transport networking solutions, equipment and software and services worldwide.

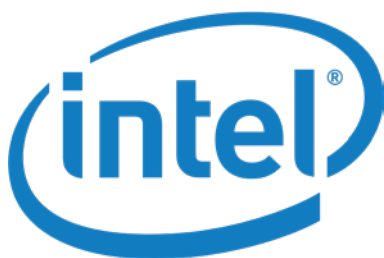


**INGENU**

Launch date: 2008

Ingenu enables long-range, low-power connectivity for IoT and machine-to-machine communication. Its wireless network serves a wide range of industries including smart cities, fleet management, smart agriculture, usage-based insurance and connected cars.





**INTEL**

Launch date: 1968

Intel allows companies to improve real-time decision-making, boost revenues, and lower costs by using its end-to-end platform of IoT solutions. The company's platform provides reference models and a portfolio of products based on foundational technologies that let companies connect, secure, and manage valuable data from existing business assets that were previously unconnected from new smart and connected things.



**INTERDIGITAL**

Launch date: 1972

InterDigital provides wireless technologies for mobile devices, networks and services. The company has developed solutions used in digital cellular and wireless products and networks, including 2G, 3G, 4G and IEEE 802-related products and networks.



**IRIDIUM**

Launch date: 2000

Iridium is a mobile satellite service company offering global coverage. The Iridium cross-linked satellites provide voice and data services for areas not served by terrestrial communication networks. The company's solutions are intended for industries such as maritime, aviation, government/military, emergency/humanitarian services, mining, forestry, oil and gas, heavy equipment, transportation, and utilities.



**ITRON**

Launch date: N/A

Itron provides end-to-end solutions to measure, manage and analyze worldwide energy and water usage. These include smart electricity, gas and water meters, smart network technologies and meter data management software.



**KII**

Launch date: 2010

Kii develops platform which allows the building and running of IoT programs. The platform helps connect devices to the cloud and allows users to monitor and manage them. The service also provides analytic insights and app development tools and support features such as geolocation, user and data management and A/B testing.



**KORE**

Launch date: 2011

KORE is an IoT/M2M service provider and developer of machine-to-machine network connectivity solutions, offering global coverage through GSM, CDMA and satellite data services. The company's products portfolio also includes Position Logic, a GPS tracking software, KORE Systems, an M2M connectivity management service, and Global Connect, a GSM-based, cellular IoT and M2M communications services available in 180 countries."



**kpn**



**KPN**

Launch date: 1915

KPN is a telecommunications provider of network services such as IP-VPN, E-Line, E-LAN, corporate internet, managed videoconferencing, international private line, wavelength, IP transit and dark fiber. The company also offers device management and network analysis reporting.



**KYOCERA**



**KYOCERA CORPORATION**

Launch date: 1959

KYOCERA Corporation is an electronic technology provider manufacturing multiple mobile devices. The company offers multiband modules supporting LTE, UMTS and GSM, and are designed for automotive and various M2M applications.

**LANTRONIX®**



**LANTRONIX**

Launch date: 1989

Lantronix is a provider of secure data access, connectivity and management solutions for IoT and IT assets.



Link Labs offers low-power, wide-area network technologies for IoT. Its Symphony Link solution connects enterprise or industrial IoT devices to the cloud. The company also offers an end-device-certified LTE Cat-M1 modem for battery-powered application.



LORIOT AG develops enterprise software for LoRaWAN and end-to-end applications. It serves businesses, cities, municipalities and wireless network operators.



LPRS provides low power radio frequency solutions (LPRS) for original equipment manufacturers (OEMs). It manufactures and supplies radio modules, antennas and sensors for the industrial, scientific and medical markets.



**M2M INTELLIGENCE**

Launch date: 2011

M2M Intelligence offers multi-network SIMs letting users connect their IoT devices. The SIMs are designed to maximize the area from which the devices can get connected, enabling them to reach better, alternative networks. The firm has also deployed the M2M Insight, a management portal allowing users to manage the performance of every device's SIM on a one-page dashboard.



**MNUBO**

Launch date: 2012

Mnubo provides Big Data and analytics to the IoT and machine-to-machine (M2M) space. The company assists with the development of "smart objects" and works with clients in the wearables, home, automotive, industrial and health care spaces.



**MONGODB**

Launch date: N/A

MongoDB offers a document database solution. It is designed to help businesses in a variety of industries leverage data to create new security applications and improvements.



**MOVIDIOUS**  
Launch date: 2005

Movidius develops vision processor chips, software and development tools. Movidius products can be applied in different industries like robotics or smart security.



**MYDEVICES**  
Launch date: 2013

Part of the Avanquest, myDevices develops a white label IoT platform providing a range of services, including device installation, activation, communication and management. The solution allows for data management capabilities, including real-time streaming and analytics/ visualization capabilities. The service also includes features like subscription management and back office tools.



**NETBURNER**  
Launch date: 1998

NetBurner offers development kits for IoT devices, enabling developers to create or modify IoT devices. NetBurner also offers Ethernet servers and core modules for network enabling.



NEURA



**NEURA**

Launch date: 2013

Neura is an IoT data management company designed to protect the user's privacy. Neura establishes a digital identity for the user, which can be managed exclusively by him/her. It then allows the user to connect their account to the technology they use in order to exchange personal data for services that companies can customize.



**NEXCOM**

Launch date: 1982

NEXCOM is an intelligent solutions provider. Its primary focuses include the IoT, intelligent platforms and services, IoT automation solutions, intelligent digital security, mobile computing solutions and network communication solutions.



**NEXENTA**

Launch date: N/A

Nexenta provides open-source, software-based enterprise storage solutions. These include cloud and virtualization-optimized storage management and plugins.



**NUTANIX**

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**NUTANIX**

Launch date: N/A

Nutanix Inc. develops and provides enterprise cloud operating system software. Its offerings include infrastructure, data protection, big data and other solutions for the education, energy and utilities, financial services, healthcare, retail, service provider, state and local government and the U.S. government.

**NXP**

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**NXP**

Launch date: 2006

NXP focuses on the development and deployment of automotive semiconductor solutions and general purpose microcontroller products.

**nwave**

35

**NWAVE**

Launch date: 1988

New!

Nwave is leveraging its low-power, wide-area wireless network, parking space sensor, analytics, and payment technologies to disrupt the transportation market by acquisition, analysis and real-time provisioning of vehicle parking data.



**OPTION**

Launch date: 1986

Option offers wireless solutions enabling machine-to-machine (M2M) communication. The solutions also provide M2M security, processing and management services. Option's solutions are designed for the retail, transportation, smart-building, smart city, smart energy and smart home markets.



**ORACLE**

Launch date: 1977

Oracle develops and offers cloud applications, platform services and engineered systems. The company's IoT solutions allow businesses to connect data from devices, perform real-time data, and predictive analytics and allow enterprise and mobile applications to control devices. Oracle IoT cloud services also allow for different features including endpoint management and integration standardization.



**ORANGE**

Launch date: 1988

Orange is a Spanish telecommunications corporation that offers M2M connectivity solutions. The company has rolled out a range of complementary LPWA (long-range wide area) solutions as well as LTE-M technology across its 4G networks in Europe.



**ORBCOMM**  
Launch date: 1993

ORBCOMM is a machine-to-machine communications solutions developer which operates a commercial satellite network dedicated to M2M. The company's services include global satellites, cellular and dual-mode network connectivity, hardware, web reporting applications and software. The solutions are focused on the tracking, monitoring and controlling fixed and mobile assets in industries including transportation, oil and gas, heavy equipment, and government.



**Particle**  
Launch date: 2011

Particle is an IoT device platform that enables businesses to build, connect and manage their connected solutions in an easy way. Particle securely connects devices to web and mobile apps so that users can securely control and collect data from their devices. Their portfolio of products includes the Particle Cloud, a cellular IoT SIM card and data plan, and cloud-connected microcontrollers.



**Plume**  
Launch date: 2014

Plume offers Plume Adaptive Wi-Fi, a self-optimizing network powered by a cloud that adapts to a user's home in real time so that every room and device receives optimized internet connectivity.



**PROGRESS SOFTWARE**

Launch date: 1981

Progress Software offers platform and tools for the development of business applications. Its platform enables the deployment of interfaces for different types of devices and offers Big Data connectivity capabilities.



**PTC**

Launch date: 1985

PTC is an American software company that works on Internet of Things, Augmented Reality and Application Lifecycle Management in addition to other industries. The company's IoT solutions include the ThingWorx Platform, which allows businesses to develop IoT applications, the Axeda Machine Cloud, a cloud-based service for managing connected products and Coldlight, the company's analytics platform.



**PUBNUB**

Launch date: 2009

PubNub offers developers the ability to connect, scale and manage real-time applications and IoT devices. The PubNub Data Stream Network enables simultaneous device connections into a single network.

**qorvo**®



**QORVO**

Launch date: N/A

Qorvo, Inc. provides radio frequency (RF) solutions and technologies for mobile devices, infrastructure, and defense and aerospace applications.

**QUALCOMM**®



**QUALCOMM**

Launch date: 1985

Qualcomm designs and markets wireless telecommunications products and services. The firm has developed a wide portfolio of connectivity-based products, enabling connections and interactions across a variety of networks. Its technologies are designed for most of the IoT markets including automotive, smart homes, smart cities, wearables, health care and education.

 **Ruckus**®  
Simply Better Wireless.



**RUCKUS**

Launch date: 2004

Ruckus Wireless provides wireless systems for the internet infrastructure market. The firm has developed a wide range of smart Wi-Fi products for both indoor and outdoor usage. The Ruckus Wireless Wi-Fi platform offers various capabilities, including location analytics and engagement technology.



**SALESFORCE**

Launch date: 1999

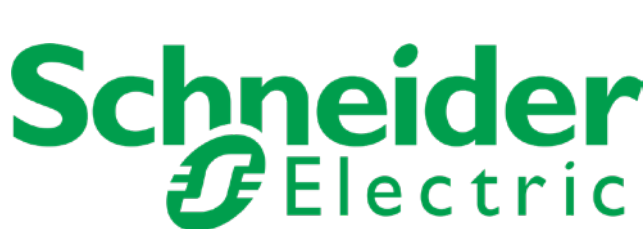
Salesforce is a developer of cloud computing services for sales, service, marketing, community, analytics, apps and the Internet of Things. The Salesforce IoT cloud enables users to connect data from every device, sensor, website, and interactions and take smarter, more personalized actions by getting better insights and real-time customer actions.



**SAP**

Launch date: 1972

SAP develops a range of products such as a cloud platform that allows users to manage and monitor remote devices, create M2M apps and develop IoT solutions. The company covers many industries, including consumer products and retail, energy and natural resources, and financial and public services.



**SCHNEIDER ELECTRIC**

Launch date: 1836

The global specialist in energy and automation management Schneider Electric has developed a software infrastructure for smart cities which enables devices, systems and people to connect. The company also offers a real-time condition management solution that collects real-time data from sensors to the cloud, analyses and converts it into meaningful analytics.



**SEMTECH CORPORATION**

Launch date: 1960

Semtech Corporation develops analog and mixed-signal semiconductor products, and created the LoRa® RF platform, a two-way wireless solution that works as a complement for M2M cellular or Wi-Fi infrastructure. It provides a way to connect battery-operated and mobile devices to the network infrastructure or endpoint. Semtech products also include power management, video broadcasting and circuit protection between others.



**SEQUANS  
COMMUNICATIONS**

Launch date: 2003

Sequans Communications is a 4G chipmaker, offering WiMAX and LTE chips designed for IoT devices. The company develops LTE chips for devices such as wearables, smart utility meters, industrial sensors, vehicle telematics, alarm panels and retail kiosks.



**SIEMENS**

Launch date: 1847

Siemens is a technology company offering electronics and electrical engineering services for the automation industry, energy and health care markets. The company offers applications of IoT technologies focusing on electrification, automation and digitalization. Applications include wind turbines connected with sensors, smart factories and IoT security solutions.





Sierra Wireless offers wireless solutions and has developed a portfolio of 2G, 3G and 4G embedded and networking solutions (routers and gateways), integrating with their secure cloud and connectivity services and management solutions. Its networking solutions provide connectivity, location-based services and remote monitoring.



Sigfox is wireless network provider with networks designed to connect low-energy devices. Sigfox works to enable low energy consumption, device-to-cloud connectivity and a system to collect data from sensors and devices.



Silicon Labs is a provider of silicon, software and tools for the IoT, internet infrastructure, industrial automation, consumer and automotive markets. Among others, the firm offers microcontrollers, wireless system-on-a-chip services and sensors for the IoT as well as advanced timing and power management chips for internet infrastructure and industrial automation.



**SILVERSPRING  
NETWORKS**  
Launch date: 2002

SilverSpring Networks offers a comprehensive suite of IoT networking solutions for critical infrastructure. The SilverLink Network provides cities and utilities worldwide with solutions for smart electricity, gas, water and city services.



**SKYWORKS**  
Launch date: 1962

Skyworks wirelessly provides analog semiconductors to connect people, places and things across applications within the automotive, broadband, cellular infrastructure, connected home, industrial, medical, military, smartphone, tablet and wearable markets. Its IoT product portfolio includes amplifiers, attenuators, front-end modules, power management and switches.



**SORACOM**  
Launch date: 2014

Soracom is a platform enabling data transmission and connectivity for IoT/M2M. The firm offers mobile data transmission using LTE/3G lines as a means of communication. The platform also allows users to manage and monitor the IoT devices.



**SORBA**

Launch date: N/A

SORBA provides platforms and services. The company's offerings are designed to gather and analyze data from sensors, and include industrial data collection, machine learning and predictive analytics.



**SPRINT**

Launch date: 1899

Sprint provides wireless and wireline telecommunication services to consumer, business and government users. Through its various subsidiary companies, Sprint also offers wireless voice, messaging and broadband services.



**STMICROELECTRONICS**

Launch date: 1987

STMicroelectronics is a semiconductors producer for several industries, including micro- electro-mechanical systems and sensors, power discrete, advanced analog products, and embedded processing solutions. It also has an automotive products portfolio including elements going from powertrain, safety and car body to infotainment.



**STORMAGIC**  
Launch date: 2006

StorMagic provides a digital storage area network. Its offering can be used IoT projects that require small IT footprints.



**SYNAPSE WIRELESS**  
Launch date: 2008

Synapse Wireless provides software, hardware, and networking solutions to develop, deploy and manage connected devices. Its SNAP solution is designed to help businesses develop, connect, control and manage networks of “Things” (devices and gateways), securely. SNAP enables the integration between the Things of IoT with Cloud-based IoT Platforms. Synapse also offers a range of hardware products including modules and wireless lighting controls.



**TAOGLAS**  
Launch date: 2004

Taoglas is a provider of external, embedded and base station antenna solutions for M2M applications. The firm enables wireless device manufacturers with telematics and automotive, smart-grid, metering and telemetry, home automation, remote monitoring and medical applications.

# TELE2



TELE2

Launch date: 1986

Tele2 is a telecom operator offering mobile services, fixed broadband and telephony, data network services, cable TV, and content services. The company delivers connectivity and enables management of the IoT connections.

# Telefonica



TELEFONICA

Launch date: 1924

Telefonica is a platform provider enabling an automated communication process between machines. The company offers connectivity services to a range of industries including automotive, utilities, vending machines, e-health and consumer electronics, among others. Telefonica's platforms boast features like smart device control, business and fleet management as well as connected car and tracking intelligent solutions.



TELENOR

Launch date: 1885

Telecommunications company Telenor offers voice, data, Internet, and content services. Telenor Connexion is a Telenor's dedicated IoT company which offers: a global Managed Connectivity solution that automates the delivery and management of mobile services to connected devices; Telenor Cloud Connect, an end-to-end solution allowing users to add digital services to their products and Telenor ARTS, a data analytics solution especially designed for IoT devices that enables customers to collect data and insights.



**TELIT**

Launch date: 1986

Telit's portfolio of IoT products includes cellular communication modules, GNSS, short-to-long range wireless applications and IoT connectivity plans. The firm also offers IoT platform services, a suite of management tools enabling connectivity, device and data control. Telit's solutions are used by the smart transportation, agriculture, retail, health care, automotive, oil and gas, smart manufacturing, smart energy and smart buildings industries.



**TELSTRA**

Launch date: 1901

Telstra offers telecommunications service and information service technologies. The company provides internet solutions for mobile phones, tablets and smart homes. It has also developed a kit of smart home devices including energy automation (with smart plugs and sensors) and a monitoring system (with cameras and sensors).



**TEMPOIQ**

Launch date: 2016

TempoIQ is real-time IoT analytics platform which offers storage, analysis and insights of data from connected applications. Besides, the service enables users to create alerts and monitor the stream of IoT data and analytics, warning them of any change or critical condition.



**TEXAS  
INSTRUMENTS**



**TEXAS INSTRUMENTS**

Launch date: 1930

Texas Instruments (TI) develops and commercializes semiconductors, wireless connectivity technologies, microcontrollers, processors and analog solutions. The company offers IoT solutions for multiple industries, including wearables, smart manufacturing, health care, automotive, smart cities and home automation.



**TUTK**

**ThroughTek Co., Ltd.**



**THROUGHTEK**

Launch date: 2008

ThroughTek is a solution provider for cloud connection platform. Their main product is the Kalay Platform, an end-to-end IoT solution and software service, enabling solution providers and device manufacturers to easily create their own IoT ecosystems.



**Mobile®**



**T-MOBILE**

Launch date: 1999

T-Mobile's 4G LTE network delivers wireless experiences to customers. The company offers the M2M Hub, a solution that provides businesses with an online tool to deliver and manage IoT connectivity. T-Mobile also manufactures modules and chipsets to enable connectivity.





Ubiquiti Networks manufactures wireless data communication products for enterprise and wireless broadband. Ubiquiti products range from connectivity software, wireless radios, routing and switching products to Wi-Fi-connected video cameras and intelligent phones.



UnaBiz is the exclusive operator of Sigfox low-power wide-area networks (LPWAN) in Singapore, Taiwan, designed to support IoT products. The company also provides energy-efficient IoT wireless infrastructure and devices.



Verizon Enterprise offers networking products, security solutions and cloud and IT infrastructure services. The company also offers ThingSpace Develop, an IoT platform that allows the users to develop, simulate and test creations.



Vodafone is a communications company that offers business, mobile, hosting and cloud services. The company also works in the machine-to-machine industry, developing M2M terminals, asset tracking, energy data management and retail solutions between others.



ZTE Enterprise develops connectivity products. Its offering includes smartphones, routers and cloud-based management systems. The company also develops railway communication solutions and provides technical consulting services in the energy sector.

## About the Tracker

The PYMNTS IoT Tracker™ brings you the latest news, developments and insights from the biggest players across the IoT ecosystem. Each month, we look at what companies are doing across the ecosystem and in terms of bringing greater connectivity to everyday items and expanding connected networks.

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