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IoT World

Internet of Things from A to Z
Systems - Modules - Gateways - Chips - MEMS - Sensors
Software - WEB Services - Cloud - Service Providers
IoT & M2M Customer Applications - Market Worldwide

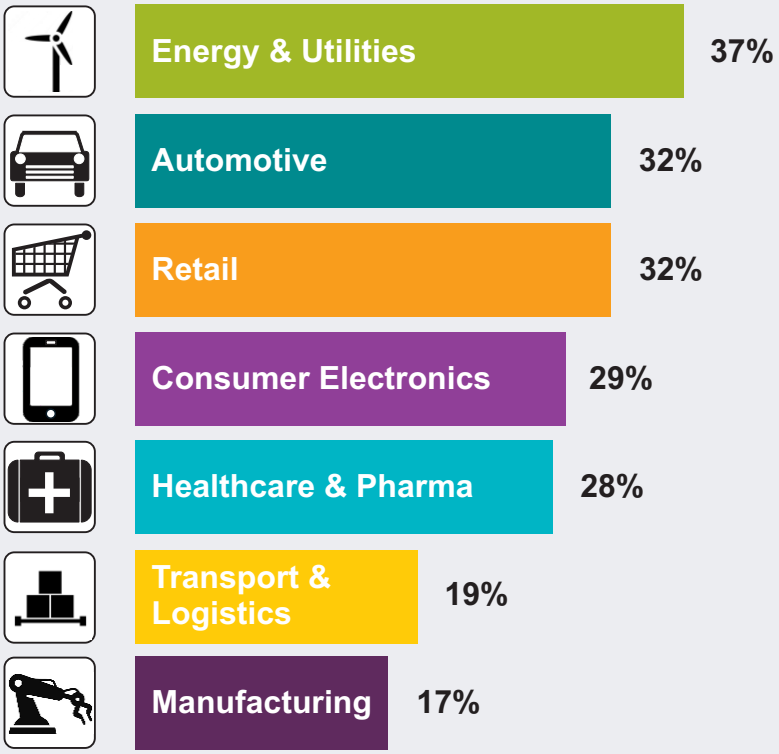
IoT World is a Global Publication of e2mos

October 2015

Breaking News

- Microsoft Azure delivers IoT market-leading innovations
- Amazon Web Services Announces AWS IoT
- Dell & EMC $67 Billion Deal
- Dell Disrupts IoT Market with Dell Edge Gateway 5000 Series
- Bosch Software Innovations IoT & Big Data Use Cases
- Intel and Honeywell Team Up on IoT Security
- Verizon simplifies IoT to accelerate adoption
- Wireless Industrial IoT WP
- IoT Has Big Awareness Gap
- Telefónica €1.78bn Smart Meter, World's largest M2M win to date
- Deutsche Telekom Top M2M
- Vodafone M2M Barometer
- IBM Plans to Acquire The Weather Company's Product and Technology Businesses; Extends Power of Watson to the IoT
- GE on Amazon AWS IoT
- China's IoT Services Revenues to Grow Faster than Any Other Major Country to $41 Billion by 2020 - ABI Research

IoT - M2M Adoption by Industry



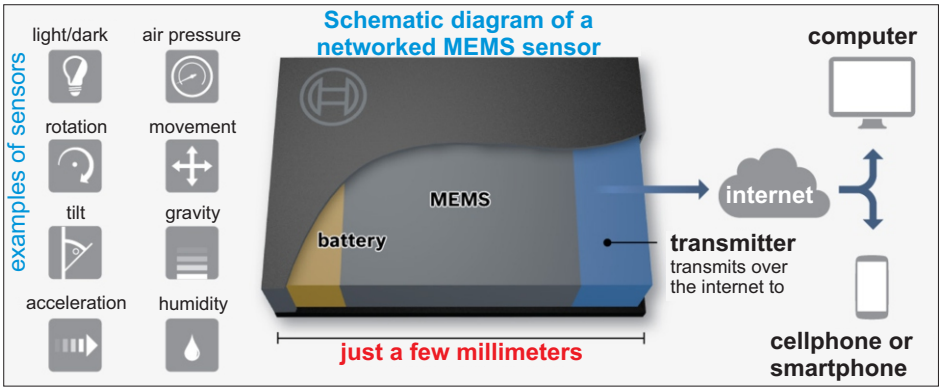
What is IoT or Internet of Things and what is M2M and MEMS

Time to sync!

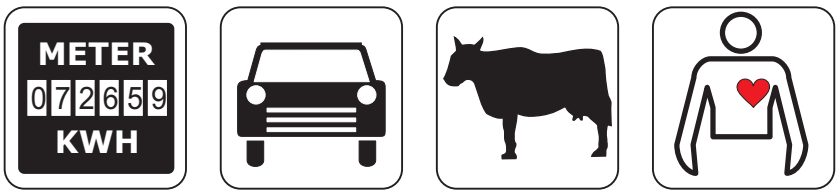
Nine out of ten consumers never heard the words IoT or Internet of Things, Oct. 2015!

Although IoT is now a very large global business dominated by giants (IBM, Intel, Cisco, Gemalto, Google, Microsoft, Amazon, Bosch, GE, AT&T, T-Mobile, Telefonica and many others) nine out of ten consumers don't know what it is (reported by a Research Center in Germany and Deutsche Telekom)

It is all about VERY SMALL SENSORS (MEMS) capturing all kind of DATA and the TRANSMISSION over INTERNET to a Computer or a Smart Phone



The Internet of Things (IoT) is in fact an environment in hich objects, animals or people are provided with unique identifiers (like each phone number or car license are unique) and the ability to transfer the data over a network without requiring human-to-human orhuman-to-computer interaction. It is a machine-to-machine (M2M) communication. M2M is a very popular terminology, if the network used is the internet (more and more the case) then IoT is more appropriate. IoT and M2M will coexist.
IoT has evolved from the convergence of wireless technologies, microelectro-mechanical systems (MEMS) and the Internet. It is also called the Internet of Everything (IoE used by Cisco).



A thing, in the Internet of Things, can be a person with a heart monitor implant, a farm animal with a biochip transponder, an automobile that has built-in sensors to alert the driver when tire pressure is low, or any other natural or man-made object that can be assigned an IP address and provided with the ability to transfer data over a network (an IP address is a unique string of numbers separated by full stops that identifies each computer/device/thing using the Internet Protocol to communicate over a network)

IoT and M2M are already in your home or soon

Smart Meters for water, gas and electricity are in the field in millions and will be soon the majority. Each time you take a liter of water it is automatically tracked in the computer of your distributor.

Continued on page 3

Daniel Dierickx
CEO & co-Founder
e2mos
Acting Chief Editor
3 Decades in the Semiconductor and the Embedded Computer Business is something great that we can share

New for IoT actors

Dear Reader,

The Internet of Thing industry and product news have been in very high abundance this month of October 2015 and we have seen several very large M&A.

That will not stop and the market will become huge, nearly all large companies are ready to face this big change.

So far we have been publishing the most important news in two of our magazines « Telecom COTS World » and « Embedded Systems World » that will continue as they are very well positioned and clearly in line with those market segments.

So, we are not new at all in this business but we have launched a new magazine « IoT World » with its own Website. Please take a look at www.iotworld.be

This tandem will be fully dedicated to the IoT from A to Z, and will be adapted to the market needs as we go.

IoT World is Free and distributed Worldwide to our Premier Customer Database.

We hope to provide you with the most important items you want to know and that it will help you to save time.

Thank you
Daniel
www.e2mos.com

IoT World
Telecom COTS World
Embedded Systems World
ATCA World

What is IoT or Internet of Things, and what is M2M and MEMS
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No Limits ahead thanks to Ipv6 & 5G – But new concerns: data privacy, data sovereignty & security

IP Space - Internet Protocol version 6 (IPv6) is the most recent version of the Internet Protocol (IP), the communications protocol that provides an identification and location system for computers on networks and routes traffic across the Internet. IPv6 was developed by the Internet Engineering Task Force (IETF) to deal with the long-anticipated problem of IPv4 address exhaustion. IPv6 is intended to replace IPv4.

Apparently the address space expansion with IPv6 could assign an IPV6 address to every atom on the surface of the earth, and still have enough addresses left to do another 100+ earths!

5G - 1,000x increase in capacity and 100+ billion connections – Today still an important portion of the networks are the 3rd generation "3G" and if you are lucky you can envoy the "4G / LTE" which is still growing very fast. By 2020 the 5G is due to be deployed, today there are already many trials done by TEM (equipment) and TELCO (service providers) leaders around the World. 5G will be needed to respond to the projected billions of connected devices and the trillions of transactions, and also for the huge traffic increase of Mobile Video including UHD / 4K multiscreen and more. 5G will offer also up to 10Gbit/s speeds and below 1ms latency.

Benefits

Today computers and, therefore, the Internet, are almost wholly dependent on human beings for information. Nearly all of the roughly 50 petabytes (1 petabyte = 1,000 terabytes) of data available on the Internet were first captured and created by human beings by typing, pressing a record button, taking a digital picture or scanning a bar code.

The problem is, people have limited time, attention and accuracy, all of which means they are not very good at capturing data about things in the real world. If we had computers that knew everything there was to know about things, using data they gathered without any help from us, we would be able to track and count everything and greatly reduce waste, loss and cost. We would know when things needed replacing, repairing or recalling and whether they were fresh or past their best.

IoT New or Not? YES and NO

1980 - Intelligent Coke Distributor - Although the concept wasn't named until 1999, the Internet of Things has been in development for decades. The first Internet appliance, for example, was a Coke machine at Carnegie Melon University in the early 1980s. The programmers could connect to the machine over the Internet, check the status of the machine and determine whether or not there would be a cold drink awaiting them, should they decide to make the trip down to the machine.

2002 - 30 million Smart Meters for electricity - In 2002 e2mos (1) was performing consultancy services for a large energy distributor who decided to deploy about 30 million Smart Meters. The project was very successful and 3 million were manufactured in Europe and the balance in China.

2013 Telefónica Signs €1.78bn UK Smart Meter M2M Deal - The 15 year agreement is the world's largest machine-to-machine (M2M) contract win to date (23-Sep-2013). By 2020 53 million meters to be deployed, a €11bn programme. This was published in one of our other magazine « Telecom COTS World » of October 2013 (2013).

Microsoft Azure delivers market-leading innovations fot the Internet of Things (IoT)

Microsoft Azure

REDMOND, Wash. — Sept. 29, 2015 — Tuesday at AzureCon, Microsoft Corp. is announcing new solutions spanning containers, security, infrastructure and the Internet of Things (IoT) that enable organizations of all sizes to transform their business in today's mobile-first, cloud-first world. Through these latest advancements, Microsoft continues to showcase rapid innovation on the Microsoft Azure cloud platform, while enabling choice and simplicity for a growing list of customers of all sizes including Alaska Airlines, Jet.com Inc. and the United Nations Development Programme (UNDP) in Nepal.

"We live in a connected world, and the intelligent cloud is powering it all," said Scott Guthrie, executive vice president of Microsoft's Cloud + Enterprise Division. "As data and devices continue to proliferate, there is vast opportunity for businesses to tap into their data to make their applications more intelligent. Through our offerings across applications, data and IoT, and cloud infrastructure, we are enabling companies to innovate more easily and rapidly, using the tools and platforms they know and love."

Modern applications: driving innovation through choice and simplicity

Applications are at the heart of business growth and transformation, and containerization is an increasingly popular way to maximize application value. Furthering its commitment to container technology and extending customer choice, Microsoft announced a new Azure Container Service that will combine the openness of Apache Mesos and Docker with the hyper-scale of Azure for container orchestration and management. With the service, organizations using Azure will now be able to easily deploy and configure Mesos to cluster and schedule Dockerized applications across multiple virtual hosts. Unlike many other container services in market today, this offering is based on open source to enable customer choice across the ecosystem and will support Windows Server containers in the future. The service will be available for preview by the end of the year.

Continued on page 4

Microsoft Azure delivers market-leading innovations fot the Internet of Things (IoT)

Continued from page 3

"With large-scale production users like Airbnb, Twitter and Apple, Apache Mesos is the most scalable and flexible container orchestration platform available on the market today," said Florian Leibert, co-founder and CEO, Mesosphere. "At the same time, Microsoft continues its rapid growth and enterprise cloud leadership, with more than 80 percent of the Fortune 500 using Microsoft's cloud to power their businesses. The partnership between Mesosphere and Microsoft will give customers unmatched choice and flexibility in managing their container investments, delivering a first-class implementation and enterprise support experience on Azure."

Internet of Things and big data: transforming business through data insights

The intelligent cloud is powered by data — and innovation is limitless when that data can be shared, gleaned for insights across connected assets, devices and systems. To that end, Microsoft announced that its Azure IoT Suite is now available for customers to purchase. The Azure IoT Suite integrates with a company's existing processes, devices and systems to quickly and easily build and scale IoT projects across their business using preconfigured solutions. In addition, Microsoft announced the new Microsoft Azure Certified for IoT program, an ecosystem of partners whose offerings have been tested and certified so businesses can take their next IoT project from testing to production, more quickly. Current partners include BeagleBone, Freescale Intel Corporation, Raspberry Pi, Resin.io, Seeed Technology Inc., and Texas Instruments.

To further enable customers to better manage their data Microsoft yesterday announced the expansion of Azure Data Lake. This includes Azure Data Lake Analytics, Azure Data Lake Store, a new programming language U-SQL, and Azure HDInsight general availability on Linux. Helping customers be productive from day one, Azure Data Lake makes big data processing and analytics simpler and more accessible for everyone.

Intelligent infrastructure: enabling innovation and trust at hyper-scale

Demonstrating its commitment to delivering trusted cloud services and infrastructure, on Tuesday Microsoft announced the availability of Microsoft Azure services in India. As the first global public cloud provider in India, Microsoft has opened three new regions — Central India in Pune, South India in Chennai, and West India in Mumbai — which will provide local customers with data residency and replication in multiple regions while fueling innovation and digital transformation within India. With 24 Azure regions around the world — more than any other major cloud provider — this latest expansion is further proof of Microsoft's commitment to bring its cutting-edge cloud to as many customers as possible. Azure services are available in India today, with Office 365 services slated for availability in October, and Dynamics CRM Online services to follow in the first half of 2016.

Security is often cited as a top concern when moving to the cloud. Customers today are looking for greater control, transparency and protection across their cloud infrastructure and assets. To help meet this demand, on Tuesday Microsoft announced Azure Security Center, a new integrated experience that gives customers visibility and control of the security of their Azure resources without impeding agility, and helps customers stay ahead of threats even as they evolve.

This first-of-its-kind service integrates with security solutions from companies such as Barracuda, Checkpoint, Cisco Systems Inc., CloudFlare, F5 Networks, Imperva, Incapsula and Trend Micro Inc. In addition to enabling integrated security, monitoring and policy management, Azure Security Center also provides invaluable recommendations. By analyzing information gathered from customers' deployments and comparing with global threat intelligence aggregated by Microsoft, the service introduces a unique ability in the industry to detect threats while taking the guesswork out of cloud security. Azure Security Center will be broadly available for Azure customers by the end of the year.

Finally, continuing investments to deliver industry-leading compute capacity, Microsoft is announcing the N-series, a new family of Azure Virtual Machines (VMs) powered by NVIDIA GPUs. GPUs have long been used for compute and graphics-intensive workloads. Microsoft is the first hyper-scale provider to announce VMs featuring NVIDIA Grid 2.0 technology and the industry-leading Tesla Accelerated Computing Platform for professional graphics applications, deep learning, high-performance computing and more. A preview will be available in a few months.

Easy and affordable cloud innovation

As demonstrated at AzureCon, Microsoft is committed to helping customers manage their cloud investments easily and affordably, with new troubleshooting tools, support resources and pricing options. On Tuesday Microsoft announced the Azure Compute Pre-Purchase Plan, a new pricing program designed for customers with steady state, predictable workloads on Azure. With this new offer, customers who pre-purchase Azure compute for one year can realize cost savings of up to 63 percent. This plan will be available globally Dec. 01.

More information on the innovations in this release and a full list of the innovations Microsoft announced today can be found at the AzureCon blog and by viewing the keynotes live or on demand at AzureCon.

Intelligent IoT Gateway Starter Kit
End-to-End Solution from ADLINK

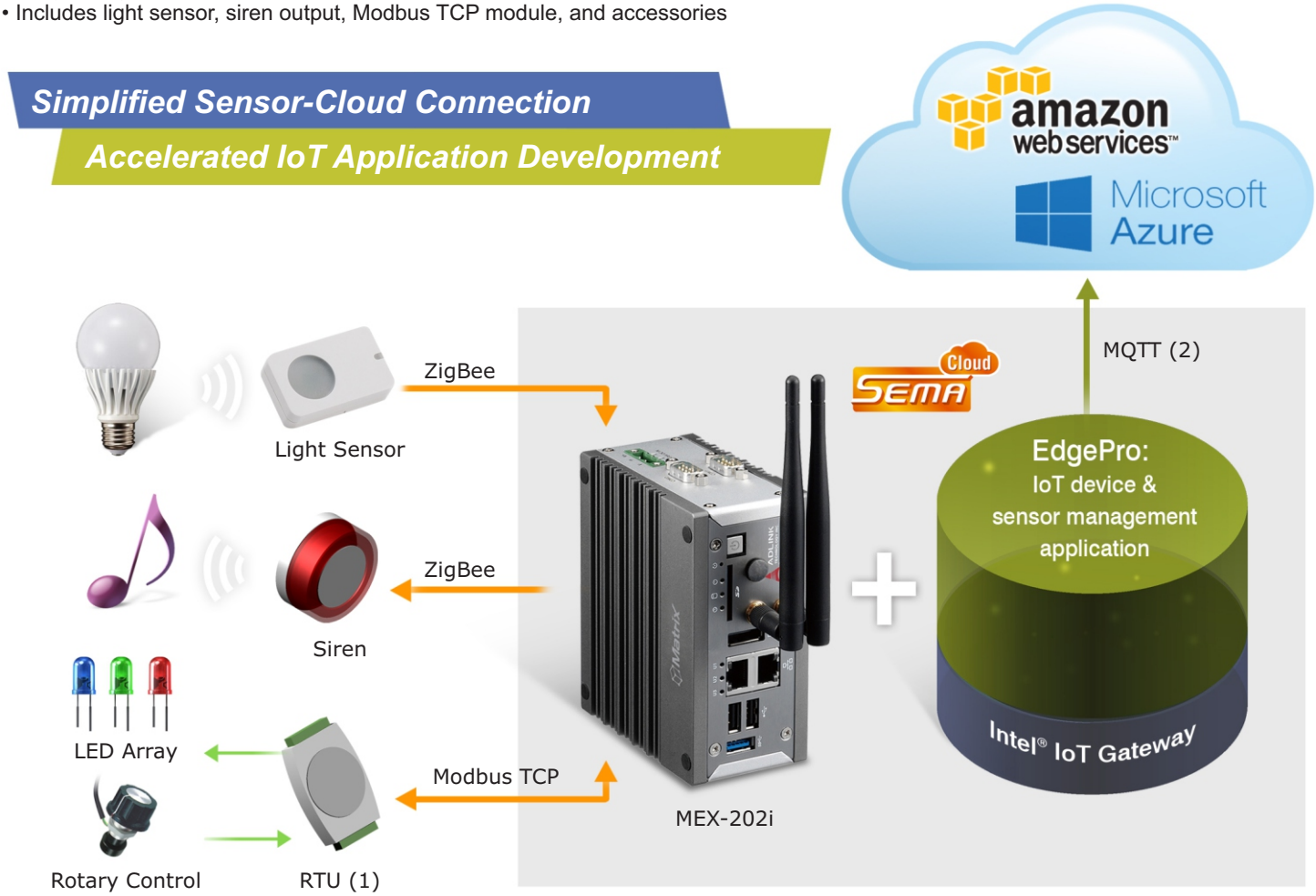
The Starter Kit contains Intelligent IoT Gateway MXE-202i, EdgePro IoT Device and Sensor Management Application based on Intel® IoT Gateway

Features:

- Provides a complete IoT connection solution for accelerated IoT application development
- Equipped with MXE-202i (Box Computer)dual-core Intel® Atom™ SoC processor E3826 IoT Gateway on Wind River® IDP XT 2.0
- Preloaded ADLINK EdgePro IoT device & sensor management application
- Easy configuration with user-friendly administrator interface and dashboards
- Includes light sensor, siren output, Modbus TCP module, and accessories

Simplified Sensor-Cloud Connection

Accelerated IoT Application Development



(1) RTU: Remote Terminal Unit
(2) MQTT is a machine-to-machine (M2M) "Internet of Things" connectivity protocol

The Intelligent IoT Gateway Starter Kit includes:

- MXE-202i with dual-core Intel® Atom™ SoC processor E3826 IoT Gateway on Wind River® IDP XT 2.0 + 8G SD card
- Preloaded ADLINK EdgePro IoT device & sensor management application
- WiFi/BT Kit (pre-installed)
- ZigBee / 802.15.4 Module USB Adapter
- Modbus RTU module
- ZigBee wireless light sensor
- ZigBee wireless siren
- Rotary control
- LED array
- Ethernet cable
- 40W AC/DC adapter

More:

- Press Release Click Here
- Technical overview Click Here
- Datasheet Click Here

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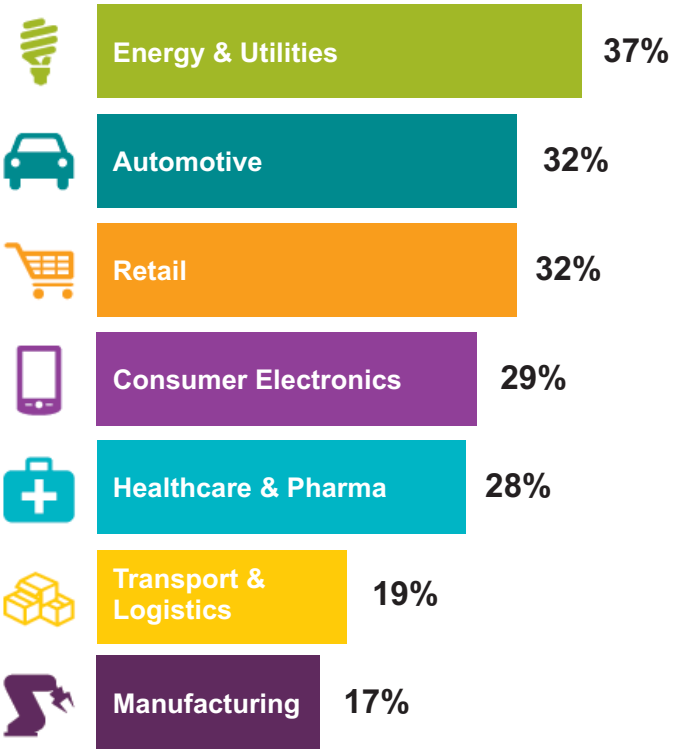
ADLINK TECHNOLOGY INC.

intel IoT Solutions Alliance Premier

IoT - M2M Adoption by Industry - 2015

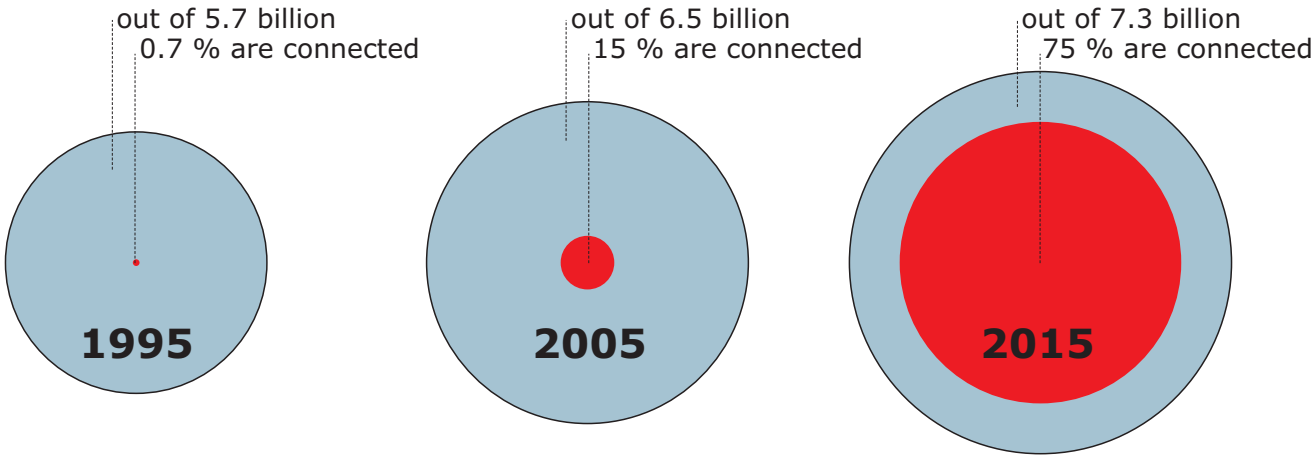
Market Segments (alpha rank):

- Agriculture
- Automotive
- Consumer Electronics
- Energy, Grid & Utilities
- Finance
- Indoor Assets & People Tracking
- Industrial Automation
- Logistics
- Medical - Healthcare - Pharma
- Retail
- Security - Surveillance
- Smart Buildings - Home Automation
- Smart Cities
- Smart Metering
- Transportation
- Wearables



Total 6.593 billion Connected Devices - 2015

- 0.062 billion vehicles
- 0.019 billion in telemedicine
- 0.070 billion in security
- 0.120 billion smart meters
- 0.260 billion TVs
- 0.625 billion tablets
- 3.000 billion mobile phones
- 1.498 billion laptops
- 0.895 billion desktops
- 0.044 billion servers



IoT - M2M Key Actors includes for example

Products & Systems Vendors

- ARM
- Bosch
- Cisco
- Dell
- Gemalto / Cinterion
- Honeywell
- IBM
- Intel
- Oracle
- Samsung
- SAP
- Texas Instruments

Web Services - Cloud

- Amazon
- GE
- Google
- Microsoft
- Tata Communications

TELCO Service Providers

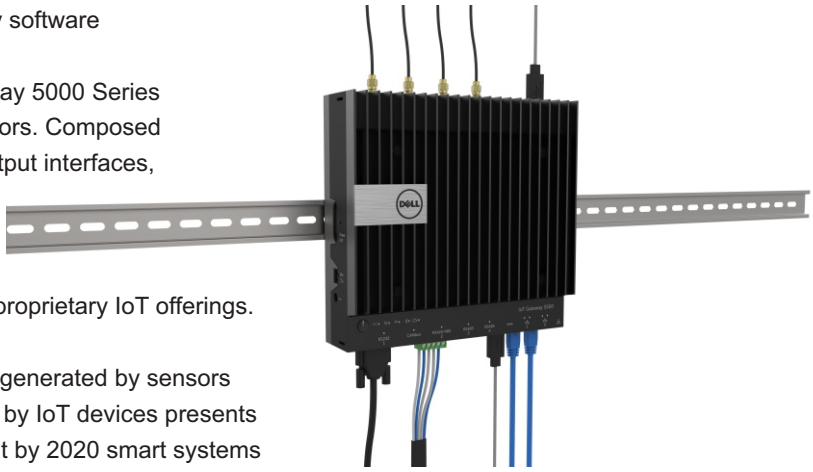
- AT&T
- O2 / Telefonica
- Orange / FT
- T-Mobile / Deutsche Telekom
- Tele2 Group
- Telus
- Vodafone

Sources Vodafone, Bosch & e2mos

Dell Disrupts Internet of Things Marketplace with Dell Edge Gateway 5000 Series and New Analytics Capabilities, Expanding End-to-End Portfolio of IoT Assets

Austin, Texas — 20-Oct-2015

- Edge Gateway 5000 Series delivers purpose-built gateway with powerful analytics capabilities, expansive input/output (I/O) options and ability to operate in extreme environments
- Solution designed for rigors of building and factory automation sectors; signals Dell's deep partnerships with operational and information technology organizations, including OSIsoft
- Dell Edge Gateway adds to industry's broadest portfolio of IoT assets, spanning newly revamped Dell Statistica advanced analytics, hardware, digital services and security and manageability software



Dell today announced the launch of the new Edge Gateway 5000 Series purpose-built for the building and factory automation sectors. Composed of an industrial-grade form factor, expanded input and output interfaces, and with wide operating temperature ranges, the Edge Gateway 5000, combined with Dell's data analytics capabilities, promises to give companies an edge computing solution alternative to today's costly, proprietary IoT offerings.

Edge Gateway 5000 Making good decisions using data generated by sensors is the central objective of IoT. Yet the rich data generated by IoT devices presents its own set of challenges. Harbor Research estimates that by 2020 smart systems will create over 194 petabytes of data[1]. The sheer volume and complexity of managing this new decentralized, localized data can quickly overload traditional environments and analysis tools. Edge analytics, carried out with the help of versatile gateways, will help with this data overload by determining what data needs to be acted on quickly and then filtered or stored.

The Dell Edge Gateway sits at the edge of the network (near the devices and sensors) with local analytics and other middleware to receive, aggregate, analyze and relay data, then minimizes expensive bandwidth by relaying only meaningful data to the cloud or datacenter. Thanks to new Dell Statistica data analytics also announced today, Dell is expanding capabilities out to the gateway. This means companies can now extend the benefits of cloud computing to their network edge and for faster and more secure business insights while saving on the costly transfer of data to and from the cloud.

“Organizations are struggling to make the best decisions regarding the data volume and complexity created by the vast numbers of sensors, embedded systems and connected devices now on the network,” said Andy Rhodes, executive director, Commercial IoT Solutions, Dell. “As more of the data is processed in real time at the edge of the network, the gateway becomes the spam filter for IoT.”

Dell's end-to-end portfolio of IoT-enabling solutions

The Edge Gateway 5000 is the newest addition to Dell's end-to-end portfolio of IoT-enabling solutions and services, which provide customers with choice and flexibility to architect IoT ecosystems with analytics at the edge, the cloud or the data center. The gateway is available for original equipment manufacturers (OEMs) to build into their solutions or for building and factory automation customers to use as part of their IoT strategy which can span data center solutions, advanced analytics and digital services. Additionally, customers' can take advantage of Dell's global availability, trusted security options, and Dell Support and Deployment services including ProSupport which provides end-to-end hardware support throughout the entire product lifecycle, helping customers maximize their gateway environment and minimize time spent on maintenance.

For example, ELM Energy is already using Dell gateways to make a difference in securing a more sustainable energy future. ELM's FieldSight Controller automates decision structures that toggle between the use of distributed energy sources such as solar, wind and backup generators and traditional utility grid sources. The systems also help customers make decisions about the most effective times to broker surplus energy back to the open market.

“Through the power of technology, ELM Energy and Dell are enabling real-time decision making that is optimizing and balancing power generation and maximizing the use of renewable energy,” said James Richmond, president, ELM Energy. “For example, if the renewable energy being generated exceeds demand, our technology is able to automatically decide if the excess should be fed back to the grid or stored for later use when the renewable sources are unavailable. The new Dell Edge Gateway 5000 Series is the perfect platform for our FieldSight Edge software to perform computing functions close to the source, at a fantastic value.”

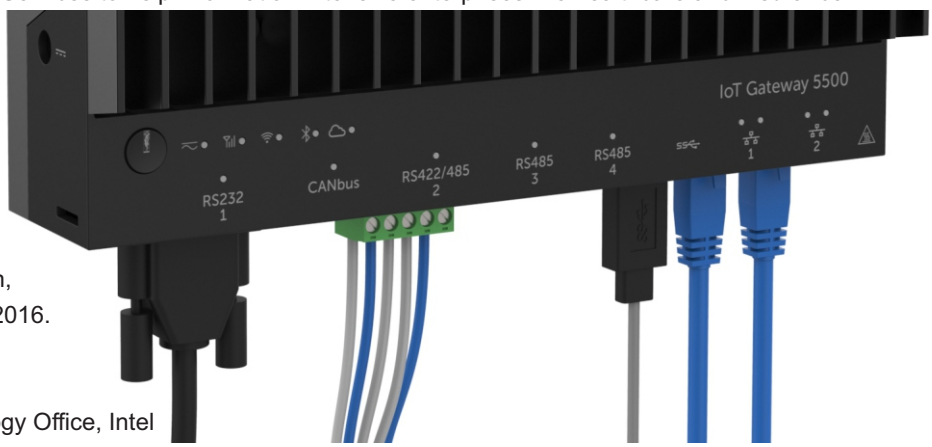
Continued on page 8

Dell Disrupts Internet of Things Marketplace with Dell Edge Gateway 5000 Series and New Analytics Capabilities, Expanding End-to-End Portfolio of IoT Assets

Continued from page 7

Additional Dell Edge Gateway 5000 Series benefits include:

- Ability to be mounted on the wall and to operate in locations with extreme temperatures like boiler rooms and deserts
- Expansive I/O structure designed to bridge both legacy serial connections (RS-422/485, CAN bus) and modern wireless networks (Wi-Fi, 802.15.4 mesh) to the internet with expansion capability for future options
- Operating system flexibility with choices that include Ubuntu Snappy, Wind River Linux, Windows 10 IoT Enterprise
- Security foundation including TPM, secure boot and BIOS level lockdown of I/O ports
- Manageability with Dell Command|Monitor for Linux and Dell Cloud Client Manager
- Dell is working with innovative independent software vendors and system integrators like SAP, OSIsoft, Eigen Innovations and Lucid to add domain expertise
- Standard Dell lead times allowing customers to receive hardware quickly, a rarity in the IT industry today
- Consulting, strategy and integration from Dell Services to help information-intensive enterprises like healthcare and insurance customize IoT approaches for their industry



Dell and Intel are also launching the “Connect What Matters” contest for innovative IoT solutions built on Dell Edge Gateways. The contest is open to commercial companies and solutions can be developed for any vertical. Participants will compete for the Best IoT Design, and the deadline for submissions is March 31, 2016.

Supporting Quotes

- Rose Schooler, VP IoT Strategy and Technology Office, Intel

“The Dell Edge Gateway 5000 Series based on the Intel® Atom™ processor E3800 product family is designed to bridge the data needs of traditional operational technology with the manageability demands of information technology. The result is a solution that meets the needs of IoT customers.”

- Patrick Moorhead, founder, president and principal analyst, Moor Insights & Strategy

“Enterprises are looking for vendors who understand the modern architectures required for comprehensive IoT and realize the importance of aggregating and analyzing data from the edge to the datacenter. With a comprehensive set of services, software and hardware solutions from the gateway to cloud to data center, Dell has a comprehensive offering including the necessary security and manageability capabilities. Dell is taking a pragmatic and realistic approach to IoT implementations.”

- Richard Beeson, Chief Technology Officer, OSIsoft

"OSIsoft's expertise in Operational Technology and Operational Intelligence, combined with Dell's Edge Gateway and deep understanding of IT, will enable commercial and industrial operations to collect and analyze new sources of data for transformational insights. The new gateway will lower the barriers to pervasive monitoring, enabling operators and engineers to capture additional sensor data without impacting or upgrading traditional automation and control systems.”

Availability

The Dell Edge Gateway will be available in select countries in December 2015 and start at USD $1,199 - www.dell.com/IoTgateway

Dell & EMC $67 billion -- Michael S. Dell, MSD Partners and Silver Lake Lead Transaction to Combine Dell and EMC, Creating Premier End-to-End Technology Company

- Brings together the industry's leading innovators in digital transformation, software-defined data center, hybrid cloud, converged infrastructure, mobile and security
- EMC stockholders to receive approximately $33.15 per share (based on the assumptions described below) in a combination of cash as well as tracking stock linked to a portion of EMC's economic interest in the VMware business
- VMware to remain an independent, publicly-traded company

Dell Inc. and EMC Corporation today (**12-Oct-2015)** announced they have signed a definitive agreement under which Dell, together with its owners, Michael S. Dell, founder, chairman & CEO of Dell, MSD Partners and Silver Lake, the global leader in technology investing, will acquire EMC Corporation, while maintaining VMware as a publicly-traded company. Full Story Click Here

IBM Plans to Acquire The Weather Company's Product and Technology Businesses; Extends Power of Watson to the Internet of Things

The Weather Company's data platform hosts the fourth-most used mobile app in the U.S.; Cloud-based service handles 26 billion requests a day

IBM ramps up new Watson IoT unit with powerful cloud platform for cognitive business

ARMONK, NY and ATLANTA, GA - 28 Oct 2015: IBM (NYSE: IBM) today announced that it has entered into a definitive agreement to acquire The Weather Company's B2B, mobile and cloud-based web properties, including WSI, weather.com, Weather Underground and The Weather Company brand. The TV segment – The Weather Channel – will not be acquired by IBM, but will license weather forecast data and analytics from IBM under a long-term contract. The combination of technology and expertise from the two companies will serve as the foundation for the new Watson IoT Unit and Watson IoT Cloud platform, building on a $3B commitment made by IBM in March 2015 to invest in related offerings and services.

IBM Senior Vice President Bob Picciano (left) joins The Weather Company Chairman & CEO David Kenny (right) at the IBM Insight Conference in Las Vegas. IBM has entered into a definitive agreement to acquire The Weather Company's B2B, mobile and cloud-based web properties, including WSI, weather.com, Weather Underground and The Weather Company brand..

The planned acquisition would bring together IBM's powerful cognitive and analytics platform and The Weather Company's dynamic cloud data platform, which powers the fourth most-used mobile app daily in the United States and handles 26 billion inquiries to its cloud-based services

The planned acquisition would bring together IBM's powerful cognitive and analytics platform and The Weather Company's dynamic cloud data platform, which powers the fourth most-used mobile app daily in the United States and handles 26 billion inquiries to its cloud-based services each day. The deal would extend the reach of IBM's cloud data services capabilities and expand The Weather Company's business capabilities and consumer reach on a global scale. The Weather Company's cloud-based data platform will allow IBM to collect an even larger variety and higher velocity of global data sets, store them, analyze them and in turn distribute them and empower richer and deeper insights across the Watson platform.

“The Weather Company's extremely high-volume data platform, coupled with IBM's global cloud and the advanced cognitive computing capabilities of Watson, will be unsurpassed in the Internet of Things, providing our clients significant competitive advantage as they link their business and sensor data with weather and other pertinent information in real time,” said John Kelly, senior vice president, IBM Solutions Portfolio and Research. “This powerful cloud platform will position IBM to arm entire industries with deep multimodal insights that will help enterprises gain clarity and take action from the oceans of data being generated around them.”

Upon closing, IBM will acquire The Weather Company product and technology assets that include the world's leading meteorological data science experts, precision forecasting capabilities and a high-volume cloud platform that ingests, processes, analyzes and distributes enormous data sets at scale in real time. The company's sophisticated models analyze data from three billion weather forecast reference points, more than 40 million smartphones and 50,000 airplane flights per day, allowing it to offer a broad range of data-driven products and services to more than 5000 clients in the media, aviation, energy, insurance and government industries.
The Weather Company's mobile and web properties handle seven times the volume of the world's leading search engine, while serving 82 million unique monthly visitors. The Weather Company's platform can ingest a wide range of data at massive speed and scale, supporting an incredible volume of queries at very low latency. IBM plans to advance The Weather Company's digital advertising platform and skills, which have driven effective monetization of weather information through data-driven advertising, to build additional ad-sponsored consumer and business solutions.

“We see the next wave of improved forecasting coming from the intersection of atmospheric science, computer science and analytics,” said David Kenny, Chairman, The Weather Company. “Upon closing of this deal, The Weather Company will continue to be able to help improve the precision of weather forecasts and further deepen IBM's Watson IoT capabilities by enabling the integration of global atmosphere and weather insights with enterprise information to create disruptive industry solutions that optimize decision-making.”
Cognitive insights derived from data generated by the Internet of Things are transforming the ways in which entire industries operate. For example, predictive weather analytics coupled with real-time analysis of social media chatter, detailed understanding of transportation flows and other related data can help retailers and distributors finely tune and maintain availability of vital goods in times of need. Airlines can save millions of dollars annually by tapping multiple real-time and historical data sources to optimize fuel consumption, reduce delays and airport congestion, and improve passenger safety during disruptive conditions.

Watson IoT Unit Builds on $3B Investment to Bring Cognitive Computing to the IoT
The planned acquisition of The Weather Company and the launch of the Watson IoT unit adds to the $3B investment that IBM committed earlier this year to build out IoT-related offerings and services. Since that initial announcement IBM developers and researchers have significantly accelerated work on new cloud-based technologies, solutions and services that will apply Watson's cognitive computing power to the Internet of Things to uncover new patterns and correlations that help businesses, institutions and individuals make better decisions. It joins a growing portfolio of Watson-fueled businesses that includes the Watson Health unit announced in April 2015.
The Weather Company and IBM formed a strategic alliance earlier this year to integrate real-time weather insights into business to improve operational performance and decision-making. Through the alliance, IBM licensed The Weather Company's cloud data platform and collaborated with The Weather Company's B2B division to deliver joint industry solutions, data services packages and APIs that enable businesses and developers to integrate real-time weather insights into business. (Read more: ibm.biz/BdHsp5)
Earlier this year, The Weather Company announced plans to shift the massive weather data services platform that powers its B2B division to the IBM Cloud.
The Weather Company is owned by a consortium comprising the private equity firms The Blackstone Group and Bain Capital, and NBCUniversal.
The acquisition is subject to customary closing conditions and regulatory clearance and is expected to close in the first quarter of 2016.
For more information on IBM and The Weather Company, please visit: ibm.biz/ibmweather

Verizon simplifies Internet of Things to accelerate adoption

SAN FRANCISCO, Oct. 28, 2015 /PRNewswire
Verizon today announced its global strategy to simplify the Internet of Things (IoT) and accelerate market adoption. Verizon's plan includes:

- Launching ThingSpace: a new IoT platform allowing developers to create applications, customers to manage devices, partners to market their services, and Verizon to launch integrated vertical solutions simply, in an open environment.
- Creating a new dedicated network core and new connectivity options for the next-generation of IoT use cases
- Driving innovation to tackle big challenges in agriculture, healthcare, the consumer electronics evolution and the sharing economy
- Commercializing Verizon's big data analytics engine for IoT deployments
- Introducing three new end-to-end smart cities solutions, Intelligent Video, Intelligent Lighting and Intelligent Traffic Management.

With an ecosystem of more than 1,000 channel partners and revenue from its IoT and telematics solutions totaling $495 million year-to-date, Verizon is generating one of the largest amounts of revenue from the Internet of Things of any company in the U.S.

"Continued innovation in smart cities, connected cars and wearables demonstrates that IoT is the future for how we will live and work," said Mike Lanman, senior vice president Enterprise Products at Verizon. "Despite the exciting potential, IoT is still too complex, too fragmented, too expensive to connect and too hard to scale. Success in that future relies on a leader that can cut through the complexity and change the IoT model. That's where Verizon comes in. With our experience in networks, devices, platforms and applications, we are taking a holistic approach to simplifying adoption to expand the IoT market from millions to billions of connections."

Verizon outlined its IoT strategy at an event held today at its San Francisco Innovation Center. The company also showcased how it's putting its IoT capabilities to work for customers in the marketplace today through ongoing collaboration. Projects underway include:

- Collaborating with Intel, the largest chipset maker in the world, to pilot Verizon's agricultural platform at Hahn Family Wines, a family-owned winery based in the Santa Lucia Highlands, located in California's Monterey County. With more than 1,000 acres of vineyards, the pilot uses sensor data and analytics that can be used effectively to conserve and add precision to resources like water and energy, prevent disease and lower operating costs – resulting in increased and consistently predictable crop yields.
- Teaming up with Renesas, one of the largest suppliers of microcontrollers in the world, to enable manufacturers of connected machines in IoT and industrial segments to embed Verizon IoT's technology early in the design process and scale quickly.
- Helping to monitor pharmaceutical products in the supply chain and improve safety utilizing Verizon Intelligent Track and Trace. Verizon's strategic relationship with rfXcel uses IoT technology and leverages the Verizon network, to provide near real-time monitoring of product environments. The commercial launch of Verizon's Intelligent Track and Trace Solution is expected spring 2016.
- Helping colleges and universities across the U.S. reduce their carbon footprint by up to 20 percent by powering the Innova EV Car Share fleet of all-electric vehicles with Verizon Share, an app designed for today's sharing economy. As millennials place more emphasis on sharing than on owning vehicles, Verizon's partnership with Innova EV Car Share is aimed to expand its reach beyond the existing pilot program to other campuses. Pilot sites include the University of Pittsburgh, Colorado State University, the University of Wisconsin–Madison and Washington State University.

"We are thrilled to be working with Hahn Family Wines, Innova, Intel, Renesas and rfXcel among many others, to help them scale and create new business models. These projects show the tremendous range of issues that we can attack in new ways with IoT solutions. We look forward to engaging other customers, partners and developers through our new ThingSpace platform and helping them bring transformational ideas to market," Lanman added.

Calling all developers

One barrier to innovation is that developers of new IoT solutions have to go through multiple channels and cumbersome processes to access the tools they need to create and launch applications. Verizon is radically simplifying that process with ThingSpace, a new self-service web interface. ThingSpace allows users to manage their IoT environments and related data, end-to-end, from device to network to application. Developers can also build IoT solutions using Verizon's extensive capabilities and innovation resources. As of today, all developers – even if they are not a Verizon customer – can code and test on the ThingSpace platform. The company will hold a developers conference in Boston in December at which a wide-range of coders including – academia, startups, business and public sector organizations – will gain access to an expanded set of APIs and application enablement capabilities on ThingSpace. Verizon will roll out hundreds more APIs on the platform throughout 2016. Visit thingspace.verizon.com to learn more.

Optimizing the network for the next-generation of IoT use cases

Another barrier to widespread IoT deployment is the cost to connect to a wide-area network compared to other networks like Wi-Fi, Bluetooth and ZigBee. Non-cellular-enabled IoT devices typically connect to a network through a hub or router, which complicates the set-up for customers and increases the potential for failure. As IoT becomes more widely adopted, network connectivity needs to be simple, reliable and economically viable. Recognizing this market gap, Verizon has created a core IoT network within its LTE architecture optimized for Cat1 devices. Verizon has also worked with partners to embed LTE chipsets in a wide-range of connected machines to automate the provisioning process and make it faster to deploy IoT devices on its wide-area network. These enhancements are designed to meet or exceed the economic requirements of the next-generation of IoT use cases. Additional enhancements planned in 2016 include enabling Power Save Mode for IoT devices to facilitate several years of battery life.

Commercializing Verizon's big data engine for IoT deployments

Understanding how to consume and manage data in order to address customer needs, solve market problems and generate societal benefits is another barrier to scaling IoT. To help businesses and consumers gain more actionable insights, Verizon is powering IoT technology with its sophisticated big data engine. One of the most advanced data and analytics operations of any industry, Verizon's platform is designed to consume massive amounts of data generated by IoT devices and other machines, analyze it at extremely high speeds and use scalable machine learning to turn raw data into usable intelligence.

Designed under the direction of the company's chief data scientist at Verizon's labs based in Palo Alto, Calif., this multi-tenant data and analytics platform is being commercialized for large-scale IoT deployments.

Paving the way for smarter cities
http://www.prnewswire.com/news-releases/verizon-simplifies-internet-of-things-to-accelerate-adoption-300167701.html

Intel and Honeywell Team Up on IoT Security for Industrial

By David McKinney - Social Media Manager, Internet of Things (IoT) Group INTEL CORPORATION
Smart factories, among the first to move forward with the Internet of Things (IoT) thanks to factory automation, will soon reap the benefits of another successful Intel IoT ecosystem collaboration. Intel Security and Honeywell Process Solutions are teaming up to bolster protection of critical industrial infrastructure. Intel Security's McAfee technologies will enhance Honeywell's Industrial Cyber Security Solutions offering, providing Honeywell customers with new choices to protect their control systems from malware and misuse. “Protecting our critical infrastructure and the emerging industrial IoT from cyber threats is a national priority, and the partnership of two market leaders will go a long way toward that goal,” said Raj Samani, vice president and chief technology officer, Intel Security. “Technologies in the Industrial IoT space have a tremendous amount of potential, and we can't let security concerns undermine that; instead, security has to enable the growth of industrial IoT, and that's what our collaboration with Honeywell will do.”

Honeywell is a leader in the industrial automation space, and its Industrial Cyber Security Solutions group has a dedicated global team of experts that provide products, services and technologies to protect industrial automation and control systems against cyber threats. The collaboration combines Intel Security's latest advances in cyber security technology with Honeywell's unique industrial process domain knowledge to provide tailored security solutions for the industrial environment.

“The threat of cyber attacks on industrial and critical infrastructure targets is growing rapidly and our customers demand effective cyber security to protect their assets and people,” said Jeff Zindel, global business leader for Honeywell's Industrial Cyber Security Solutions group. “Collaborating with Intel Security expands our capabilities to ensure the availability, reliability and safety of customers' industrial control systems and plant operations.” MORE Click Here

China’s IoT Services Revenues to Grow Faster than Any Other Major Country to $41 Billion by 2020 - ABI Research

Oyster Bay, New York - 22 Oct 2015 -- China's Internet of Things (IoT) services revenues will grow more than five times in the next five years, exceeding US$41 billion by 2020. This is the fastest revenue growth rate of any country monitored in ABI Research's new IoT Market Tracker. The tracker provides IoT revenues across six services segments including connections, connection management, security, data analytics, platform and professional services.

See the IoT Market Tracker https://www.abiresearch.com/market-research/service/iot-market-tracker/

“Driving China's IoT numbers is the smart meter segment,” says Dan Shey, VP and IoT Practice Director at ABI Research. “It leads all other segments in both connections and revenues. In fact, by 2020, smart meter connections will exceed the next highest market segment in total connections by nearly 10 to 1.”

Besides smart meters, other major segments driving the Chinese IoT market will be home security and automation, OEM telematics, video surveillance, home appliances, aftermarket telematics and home monitoring. Home monitoring is expected to become an important market in China as it attempts to care for its aging population, which will reach nearly 340 million people in 2020 for citizens age 55 and older.

“Interestingly, data analytics revenues will generate the most IoT revenues in China. This statistic is reflective of the sheer volume of smart meter connections,” continues Shey. “But it is also indicative of the relative lack of revenues in both platform and professional services in the China market. Platform revenues are not as high due to, for example, a higher share of proprietary embedded telematics deployments, especially by domestic OEM brands. Professional services revenues are similarly not as high, not only due to fewer connections in the telematics segments, with a higher proportion of tethered solutions, but also because IT and consultancy services are not as mature a market segment as in some of the more developed world markets such as Japan, South Korea and the United States.”

The IoT Market Tracker provides connections and services revenues for 2G, 3G, 4G, fixed line and satellite connections across 30 application segments, 30 industry verticals and 4 size of business segments covering 18 individual countries and regions. It is part of ABI Research's IoE, Enterprise & M2M Research Service, which includes research reports, market data, insights and competitive assessments.

ABI Research provides technology market research and technology intelligence for industry innovators. From offices in North America, Europe and Asia, ABI Research's worldwide team of experts advises thousands of decision makers through 70+ research and advisory services. Est. 1990. For more information visit www.abiresearch.com or call +1.516.624.2500.

GE on Amazon AWS IoT

from AWS Summit 2013 (yes 2013) we suggest you play it again see the video http://aws.amazon.com/fr/solutions/case-studies/ge/
by Joseph J. Salvo, GE

GE's Global Business Integration Technologies Laboratory wanted to advance traditional manufacturing and create a dynamic network of people and machines that would allow collaboration, rapid prototyping, and product development for complex systems. GE had to adhere to U.S. International Traffic in Arms Regulations (ITAR) regulations and other compliance requirements. By using AWS GovCloud (US), GE developed a revolutionary manufacturing platform, Crowd-driven Ecosystem for Evolutionary Design (CEED), which connects people, materials, models, simulation, and equipment in an ITAR-compliant, secure, and distributed global environment.

Telefónica Signs €1.78bn UK Smart Meter M2M Deal

Mass roll out of smart meters will commence during 2015. (published in our Telecom COTS Worlkd Oct.2013)

The 15 year agreement is the world's largest machine-to-machine (M2M) contract win to date

Telefónica today announces that its UK business has been officially awarded the €1.78bn (£1.5bn) contract to deliver smart meter communications services in the UK. Telefónica today signed the 15 year agreement with the UK Department of Energy and Climate Change (DECC) which represents the industry's largest M2M contract win to date.

Telefónica UK has been awarded two out of the three communications service provider lots within the overall UK Smart Meter Implementation Programme (SMIP) tender. The initiative is the world's most ambitious smart meter roll out which will see over 53m smart meters installed across the UK by 2020. The £11bn programme is expected to deliver a net benefit to the UK of £6.7bn through reduced energy consumption and more efficient management and deployment of energy across the country. It is estimated that a smart meter enabled industry could save 2bn tonnes of CO2 a year in 2020*.

Telefónica UK will provide the communications infrastructure to connect smart meters in the central and southern regions of Great Britain. The technology solution which was successfully selected by DECC is primarily based on Telefónica UK's existing cellular network complimented with mesh technology used to provide connections in hard to reach areas.

The combination of cellular and mesh represents the ideal communications technology for smart meter deployments. Cellular is a proven, open, standards-based technology that is ready to support the needs of smart meters without needing additional infrastructure. Mesh compliments cellular, providing coverage in more remote areas and in hard to reach spaces. Telefónica has successfully tested both technologies in relation to smart meters and already connects over 400,000 smart meters in Great Britain via cellular, while the mesh solution has been successfully implemented in over 650,000 households in the Nordics.

Machine-to-Machine is a key focus area for Telefónica Digital, the division formed to drive Telefónica's transformation to becoming a digital telco. The UK smart meter deal is the latest in a number of high profile contract wins following the formation of the unit, including Dell and General Motors' On Star. Earlier this year, a number of industry analysts named Telefónica a global leader in M2M in reflection of the formation of Digital, development of new in-house Smart M2M platform and partnership strategy.

Commenting on the deal, Matthew Key, Chief Executive of Telefónica Digital said, “the Internet of things has the potential to transform society and we hope Telefónica Digital will be at the heart of this. Smart meters are a perfect example; they will become the foundation of a revolution in energy consumption and management, helping consumers and businesses to more efficiently manage their energy usage with significant economic and environmental benefits.”

Key continued, “this deal is a huge endorsement of the decision to form Telefónica Digital which gave us the right structure and focus on M2M to take our capabilities in this area to the next level. From technology innovation in platforms through to dedicated sales teams and partnerships we have the right components in place to lead in this area and meet the needs of customers across a wide variety of sectors. We look forward to supporting additional smart meter deployments in other Telefónica markets.”

With the agreements now in place, Telefónica will immediately start working with the Data Communications Company (Smart DCC Limited) and the other successful service providers to design, build and test the solution.

*Source: Smart 2020: enabling the low carbon economy in the information Age

About Telefonica Digital

Telefónica Digital is a global business division of Telefónica. Its mission is to seize the opportunities within the digital world and deliver new growth for Telefónica through research & development, venture capital, global partnerships and digital services such as cloud computing, mobile advertising, M2M and eHealth. It is also driving innovation in over the top communications under a new umbrella brand called TU and in Big Data through Telefónica Dynamic Insights. Telefónica Digital will deliver these new products and services to Telefónica's 316 million customers as well as entering new markets. It is headquartered in London with regional centres in Silicon Valley, Sao Paulo, Spain and Tel Aviv. Axismed, Eleven Paths, giffgaff, Jajah, Media Networks Latin America and Terra are all managed under the Telefónica Digital umbrella.

For more information about m2m business, visit m2m.telefonica.com

IoT and Big Data brought together in commercial use cases

Regardless of who you talk to, everybody agrees that the IoT will be the next big “thing”.
The excitement for IoT is supported by:

- Ever shrinking hardware
- Ubiquitous connectivity
- Rich IoT application platforms
- An increasing number of IoT use cases and industry applications
- The economic value that big data hold

Several of these IoT scenarios are very end-user oriented, e.g. driven by crowd funding and the Maker Movement. Examples include the Pebble smart watch, the innovative Tile product (a “Thing” locator) or the smart Hue light bulbs. However, many IoT examples are more focused on industrial applications, including fleet management, telematics, smart metering and smart grids, telehealth, and so on.

IoT use case 1: Retail & logistics

Retail & logistics is a key area where IoT is expected to have a huge impact as an enabling technology. RFID (Radio Frequency Identification) has been used successfully in logistics to track containers, pallets and crates for some time now, primarily in closed loop systems and mostly with high-value goods. The massive investments in IoT technologies are promising to help reduce costs for RFID and similar technologies, eventually making the tracking of goods on an item-level a feasible business case. For retailers, this has many advantages, including inventory accuracy, reduction of administrative overhead, automated customer check-out processes and a reliable anti-theft system.

Other emerging technologies are so-called “beacons”. These beacons are indoor positioning systems, which can interact directly with modern smart phones, e.g. using Bluetooth Low Energy (BLE). A network of in-store beacons can identify the location of customers in a store and send them push notifications. For example, a user might create a shopping list on his smart phone and share it with the store app. Upon entering the store, the store app will display a map to the customer, which highlights all the products on his shopping list. Every time the customer gets close to a position where a group of products from his shopping list is located, the app will notify him and make a recommendation for a particular brand. At the check-out point, the system could identify all the products in the shopping cart automatically via RFID, create and confirm an invoice, and use the smart phone to process the payment. The store's inventory system is automatically updated when the checkout process is complete.

The use of a NoSQL data repository would be of great benefit for storing all kinds of structured, semi-structured and unstructured customer related data, including shopping history and movements through the store. Advanced data analytics algorithms could be used to analyze the customer's movements and past shopping decisions. This enables the IoT application to generate shopping recommendations that can be pushed to the customer's smart phone while in the store, or to notify him of special offers – for example if the system detects that the customer is returning to an area in proximity to the store.

IoT use case 2: Industry

Industry 4.0, Smart Factory and Industrial Internet are some of the terms used to describe the social and technological revolution that promises to change the current industrial landscape. There are many examples discussed and explored in this area, from leveraging IoT supply chain optimization to the modularization of production lines with the help of intelligent products.
This example is related to the increasing use of hand-held tools in manufacturing, e.g. for the assembly of automobiles, airplanes, trains and ships. In recent years, these tools have become more powerful (e.g. torque) and are now equipped with long lasting batteries, enabling workers to use them without the limitations of power cables or a fixed connection to an air compressor. This greatly enhances flexibility, but also poses certain challenges from a manufacturing process point of view, which can be addressed by leveraging IoT capabilities.

One of the key IoT concepts is the development of intelligent, connected “edge” devices. One example for such an IoT device is a nut runner which is equipped with an on-board computer and wireless connectivity. The on-board computer supports many aspects of the tightening process, from configuration (e.g. which torque to use) to creating a protocol of the work completed (e.g. which torque was actually measured). In addition, the nut runner features a laser scanner for component identification.

By integrating such an intelligent edge device into the IoT, very powerful services can be developed that can help with supply chain optimization and modularizing the production line. For example, these intelligent tightening tools can now be managed by a central asset management application, which provides different services:

- Basic services could include features like helping to actually locate the equipment in a large production facility
- Geo-fencing concepts can be applied to help ensure only an approved tool with the right specification and configuration can be used on a specific product in a production cell

The central asset management system can help with optimizing tool maintenance, for example by periodically reading calibration information from the remote tools via the factory WLAN. The asset management application can serve as the bridge between the power tools and the ERP (Enterprise Resource Planning) and MES (Manufacturing Execution System) systems that control the manufacturing process. For example, the asset management system can distribute work orders and configurations to the tools. In addition, the asset management application can document each tightening process by creating inspection lots (e.g. using torque recordings from the tools) and associate them with the BOM (Bill of Material) in the ERP system.

Such a production documentation system can benefit hugely from big data and NoSQL technologies that allow the aggregation of large volumes of heterogeneous, multi-structured data about the production process, including legacy data from many different systems, in addition to images and film recordings from different production modules. In an age where manufacturers can suffer huge costs from large product recalls, this can be a very powerful tool.

Source: Dirk Slama Director BD Bosch Software Innovations **WHITEPAPER** “IoT and Big Data” mgt@e2mos.com

Amazon Web Services Announces AWS IoT

New platform allows customers to connect and manage billions of devices, powering applications that process, analyze, and act on IoT data on global scale

Arrow, Avnet, Broadcom, Intel, Marvell, Mediatek, Microchip, Qualcomm, Renasas, SeedStudio, and Texas Instruments to offer Internet of Things Starter Kits with AWS IoT ready hardware components

SEATTLE--(BUSINESS WIRE)--Oct. 8, 2015-- Today at AWS re:Invent, Amazon Web Services, Inc. (AWS), an Amazon.com company (NASDAQ: AMZN), announced AWS IoT, a new platform that makes it easy for devices — cars, turbines, sensor grids, light bulbs, and more – to connect to AWS services so that companies can store, process, analyze, and act on the volumes of data generated by connected devices on a global scale. Devices connect to AWS IoT's Device Gateway, and manufacturers can set rules for how AWS IoT handles the data they send, and the actions they take when various conditions are met (such as sending an alert when a pressure sensor reports an unusually high reading or a motion detector is triggered). Connected devices are usually operated via applications that communicate with them using APIs, but devices may not always be available to respond to API calls because of intermittent connectivity or because of power constraints. AWS IoT creates a virtual version, or “shadow” of each connected device that includes all of the information about the device's state and is always available so that applications can check the device's status and take actions that are automatically sent to the device once it reconnects. AWS IoT provides an SDK that makes it easy for developers to use the AWS IoT functionality from connected devices, and from mobile and web applications. A number of semiconductor manufacturers also have “Starter Kits” Powered by AWS IoT that embed the AWS IoT Device SDK and offer connectivity to AWS IoT out of the box. For more information about AWS IoT, visit https://aws.amazon.com/iot.

Today, many of the world's leading manufacturers, developers, enterprises, and smart cities use AWS services to power a wide range IoT applications that span everything from energy metering and oil and gas production to fleet management and smart homes. However, operating highly available and reliable systems that connect and gather data from large fleets of “things” – sensors embedded in everything from manufacturing equipment and vehicle fleets, to fitness devices and homes – involves a significant amount of development and infrastructure effort. To manage this complexity, customers have had to build custom middleware that can translate device protocols (so that applications can interact with these devices) and provision infrastructure that can scale to support a high volume of simultaneous connections between cloud services, mobile apps, and an array of devices which may connect only intermittently and have limited compute, storage, or battery life. With AWS IoT, customers have a pay-as-you-go service that handles the heavy lifting involved in connecting any number of disparate devices, allowing them to securely interact with each other, cloud services, and applications while keeping them up-to-date, and collecting, analyzing, and taking action on the continuous streams of data they generate.

“The promise of the Internet of Things is to make everyday products smarter for consumers, and for businesses to enable better, data-driven offerings that weren't possible before. World-leading organizations like Philips, NASA JPL, and Sonos already use AWS services to support the back-end of their IoT applications,” said Marco Argenti, Vice President, Mobile and IoT, AWS. “Now, AWS IoT enables a whole ecosystem of manufacturers, service providers, and application developers to easily connect their products to the cloud at scale, take action on the data they collect, and create a new class of applications that interact with the physical world.

With AWS IoT, customers can:

• **Connect devices to the Cloud and to each other (Device Gateway and AWS IoT Device SDK):** Devices connect to AWS IoT via the Device Gateway using both HTTP and Message Queue Telemetry Transport (MQTT), an industry-standard, lightweight communication protocol designed for sensors and mobile devices, making them interoperable independent of the protocol they use. AWS IoT also supports other industry-standard and custom protocols that customers may have already implemented, and devices can communicate directly with each other regardless of the protocol they use. AWS IoT scales as the number of devices grows, providing connectivity with low latency and high throughput on a global scale.

• **Secure data and interactions:** AWS IoT provides mutual authentication so that data is never exchanged between devices and AWS IoT without proven identity, and encrypts all data coming into and out of connected devices. AWS IoT is fully integrated with AWS Identity and Access Management (IAM), making it easy for customers to set granular permissions for individual devices, or fleets of devices, and manage them throughout the lifecycle of the device. Customers can generate and embed security credentials in their existing connected devices, or AWS IoT can generate new ones when devices are first activated.

• **Process and act upon device data (Rules Engine):** AWS IoT's rules engine lets customers define rules that filter, process, and route data between devices, AWS services, and applications. Using the AWS Management Console, the AWS Command Line Interface (CLI), or AWS IoT APIs, customers can create rules that apply to data from a single device (such as a sensor), a group of devices (such as a sensor array), or a mix of devices and data sources (such as a sensor array and data stored in Amazon DynamoDB). Rules specify conditions that, when verified, instruct AWS IoT to take actions such as routing data to Amazon Kinesis, Amazon S3, Amazon Redshift, Amazon Machine Learning, or Amazon DynamoDB. For example, AWS IoT may receive messages from connected industrial equipment that produce vast amounts of telemetry data each hour, not all of which may be relevant to the business. With AWS IoT's rules engine, the business can instruct AWS IoT to filter certain types of sensor data (e.g. pump pressure) as it comes in, and route only the specified data to Amazon Kinesis Firehose to be streamed into an Amazon Redshift data warehouse for later analysis. AWS IoT rules can also trigger AWS Lambda to run code that will take more complex actions, such as compressing data, or sending a push notification to an operator if an anomaly is detected. Customers can update rules in AWS IoT without intervention on the physical device, reducing the cost and effort involved in updating and maintaining large fleets of devices.

• **Allow cloud applications to interact with connected devices even when they are offline (Device Shadows):** AWS IoT creates a persistent, virtual version, or “shadow,” of every device that stores the latest state of a device so that applications or other devices can read messages from the device and interact with it anytime – even if it is offline. By providing always-available REST APIs, AWS IoT makes it easier for customers to build applications that interact with connected devices. Applications can read the state of a device or set a desired future state through API calls, and AWS IoT takes care of setting the correct state, sending only relevant changes to the device once it reconnects.

• **Get started quickly with AWS IoT Starter Kits from leading hardware manufacturers:** Through the new AWS Hardware Partner Program, a growing ecosystem of semiconductor manufacturers, including Arrow, Broadcom, Intel, Marvell, Mediatek, Microchip, Qualcomm, Renasas, SeedStudio, and Texas Instruments are offering IoT starter kits powered by AWS that include the AWS IoT SDK and hardware components that are ready to connect to AWS IoT. Available for purchase on www.amazon.com, these kits offer a wide range of microcontroller, sensor, and development boards that developers and manufacturers can use to very rapidly prototype AWS IoT enabled connected devices.

Continued on page 15

AWS IoT

Continued from page 14

Philips Healthcare Informatics "At Philips we aim to empower people to take greater control of their health with digital solutions that support healthy living and improved care coordination," said Jeroen Tas, CEO Healthcare Informatics, Solutions and Services, Philips. "Our HealthSuite digital platform and its device cloud are already managing more than seven million connected, medical-grade and consumer devices, sensors, and mobile apps. With the addition of AWS IoT, we will greatly accelerate the pursuit of our vision. It will be easier to acquire, process, and act upon data from heterogeneous devices in real-time. Our products, and the care they support, are enabled to grow smarter and more personalized over time."

NASA and Jet Propulsion Laboratory (JPL) have instruments all over the solar system and beyond serving humanity with amazing data. Much of this data is already processed in the cloud, and it's increasing daily. NASA's experiments with AWS IoT have been highly positive and demonstrate that NASA can now use the compute power of the cloud to integrate and process the data provided by sensors in mobile devices, smart devices, conference rooms, clean rooms, and beyond. The AWS IoT integration with the foundational AWS services make it a very powerful platform for NASA JPL to build meaningful, connected, IoT experiences.

Diversey Care, a division of Sealed Air Corp, is the leading provider of smart, sustainable solutions for cleaning and hygiene. "We're excited about AWS IoT to provide scalable and efficient connectivity for our connected 'Internet of Clean' products," said Dr. Ilham Kadri, President, Diversey Care. "Supporting millions of connected cleaning appliances means we have to process massive amounts of telemetry and command data from these devices reliably, with low-latency, and cost-effectively. Now we can rely on AWS IoT for that critical infrastructure, and focus on helping our customers create cleaner, healthier environments."

Rachio makes a WiFi smart sprinkler controller that helps customers water for better results and lower costs by adjusting for weather conditions and adapting to their yard. "Building connected devices is challenging enough, but great mobile apps are the primary way customers interact with our sprinkler controllers," said Franz Garsombke, Chief Technology Officer, Rachio. "AWS IoT's Device Shadows greatly simplify our app development. Our apps can use AWS IoT's secure REST APIs to retrieve the last reported state of a sprinkler controller (environmental data), or set a desired future state (watering time and amount). It means our app development can move faster than ever, and we can focus even more on building a great customer experience."

Intersection "Our smart city products need to evolve with the needs of taxpayers over time," said Michael O'Neil, Chief Technology Officer, Intersection, one of the companies behind LinkNYC, an initiative that will replace the aging network of public pay phones into networked hubs that provide information and connectivity across New York City. "We're constantly experimenting in order to do that. AWS IoT is great for us because we can prototype quickly with SDKs for C, JavaScript and Arduino, or even choose a readymade starter kit. As our prototypes mature into production features, we can feel secure that AWS IoT will also support them at urban scale."

APN Partner support for AWS IoT

Many customers require additional IoT software and services to extend the AWS IoT platform, and AWS Partner Network (APN) Partners offer operating systems, management platforms, analytics, and services that work with AWS IoT. For example, the Micrium and Ubuntu operating systems have the ability to run the AWS IoT Device SDK and connect to AWS IoT. And, if customers need additional device management capabilities, such as over-the-air updates or remote diagnostics, APN Partners like Ayla Networks, Cirrus Link, Thingworx, and Xively offer these services. As data flows into AWS, customers can get insights and predictions through APN Partner Splunk. Finally, customers that want help bringing all these pieces together and customizing them for their specific use can work with system integrator APN Partners Accenture, Booz Allen Hamilton, Thinglogix, Two Bulls, and a whole host of others.

About Amazon Web Services
Launched in 2006, Amazon Web Services offers a robust, fully featured technology infrastructure platform in the cloud comprised of a broad set of compute, storage, database, analytics, application, and deployment services from data center locations in the U.S., Australia, Brazil, China, Germany, Ireland, Japan, and Singapore. More than a million customers, including fast-growing startups, large enterprises, and government agencies across 190 countries, rely on AWS services to innovate quickly, lower IT costs, and scale applications globally. **More** http://aws.amazon.com.
About Amazon Amazon.com opened on the World Wide Web in July 1995. The company is guided by four principles: customer obsession rather than competitor focus, passion for invention, commitment to operational excellence, and long-term thinking. Customer reviews, 1-Click shopping, personalized recommendations, Prime, Fulfillment by Amazon, AWS, Kindle Direct Publishing, Kindle, Fire tablets, Fire TV, Amazon Echo, and Alexa are some of the products and services pioneered by Amazon.

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