



AT&T, KDDI, KPN, NTT DOCOMO, Orange, Telefonica, Telstra, TELUS and Verizon Back Deployment of LTE-M for Internet of Things

LTE-M : The evolution of LTE for IoT is expected to bring the very latest technology to IoT devices and applications across the globe

Barcelona, 0900hrs CET, 27 February 2017: AT&T (US and Mexico), KPN (Netherlands), KDDI (Japan), NTT DOCOMO (Japan), Orange (Europe, Middle East and Africa), Telefonica (Europe), Telstra (Australia), TELUS (Canada) and Verizon (US) confirmed support for the global deployment of LTE-M at the Mobile World Congress in Barcelona.

These operators are working to ensure that LTE-M supports roaming and standards-based local service delivery so that both enterprise and customer-oriented IoT objects, such as trackers or wearables, can be designed for worldwide markets.

The supporting operators are engaging in several activities including pilots, IoT Open Labs and launches of starter kits to support and accelerate the ecosystem of modules and objects.

AT&T

AT&T switched on North America's first LTE-M enabled commercial site in October 2016 and plans nationwide U.S. deployment of its LTE-M network ahead of schedule in the second quarter of 2017 and in Mexico by the end of the year. The roll out will ultimately support a North American footprint covering 400 million people in the U.S. and Mexico. LTE-M will put AT&T on the path toward 5G with enhanced features such as low-power, longer battery life, smaller modules and better coverage underground and deep inside buildings.

<http://soc.att.com/2kPJot5>

KDDI

KDDI plans to introduce this technology in its fiscal year 2017. KDDI leads the Japanese IoT market, serving nine of the 10 utilities in Japan using its nationwide LTE network with advanced metering infrastructure services. KDDI will evolve its LTE network with this technology. KDDI, aiming to transform into a "Life Design Company" in all business fields, will provide diverse and beneficial products and services boosted by IoT for the different stages of our customers' lives.

<http://www.kddi.com/english/>

KPN

As the first operator in Europe, KPN successfully trialed the new Internet of Things (IoT) technology LTE-M in November 2016 (also known as LTE Cat-M1). The LTE-M technology is complementary to the recently introduced LoRaWAN network of KPN as well as to existing Machine-to-Machine (M2M) use cases on 4G. KPN is planning a nationwide LTE-M roll-out by the end of 2017.

<https://www.kpn.com/>

NTT DOCOMO

NTT DOCOMO provides innovative, convenient and secure mobile services that enable smarter living for each customer and is a leading developer of a 5G network that it plans to deploy by 2020. DOCOMO has already deployed various IoT services via its cellular network and soon will support eDRX for longer battery life. DOCOMO is committed to further enhancement of IoT services by launching LTE-based IoT technologies such as LTE-M. www.nttdocomo.co.jp/english.

Orange

Orange has primarily chosen LTE-M to be progressively deployed on its 4G networks in Europe, starting with Belgium and Spain this year before the rest of the Group's European footprint. Orange is also launching Europe's first LTE-M IoT Open Lab in France in April. Orange is providing IoT Starter Kits to help IoT developers accelerate their discovery of LTE-M and build a functional prototype faster. The Group has also announced two pilots in 2017 – one will be run in the smart metering domain to connect LTE-M-based electric meters to remotely control power consumption and adapt user subscriptions. A second pilot will test LTE-M-enabled wearable devices that can measure an individual's movement, temperature and other health-related information.

www.orange.com

Telefónica

Telefónica is fostering all GSMA LPWA technologies in line with its promise to offer the best IoT connectivity. In the space of LTE-M, on 14th of February 2017, Telefónica completed the first live LTE Cat M1 data call in Europe involving major players of the IOT ecosystem. From 2017 2nd quarter onwards, according also to devices availability, Telefónica in Europe will be ready to support the first customer experiences using the new protocol. Telefónica is running a GSMA LTE-M Open Lab in Madrid (<https://www.5tonic.org/>) and has plans to connect it with its entrepreneurs ecosystem accelerator Telefónica Open Future (<https://www.openfuture.org/en>) to give access to the LTE-M network technology, devices and support from experts. During MWC Telefónica will showcase in Barcelona the first live LTE-M network demonstrating a variety of use cases (waste management, electricity metering and wearables) which leverage on the advanced capabilities of LTE-M.

<https://iot.telefonica.com/>

Telstra

Cat M1 can enhance LTE coverage for underground and in-building areas that challenge existing coverage. Combined with Telstra's existing leading LTE coverage, customers can deploy a range of near real time applications in logistics, utilities, medicine, transport, mining, agriculture, manufacturing and many more. As Cat M1 devices and solutions become commercially available, Telstra is set to support their operation across its expansive 4G network which covers over 98% of the Australian population.

www.telstra.com

TELUS

TELUS is actively involved in developing 5G wireless technology, and is committed to all the foundational pillars of 5G: Enhanced Mobile Broadband (i.e. [HetNet](#), [PicoCell](#), [C-RAN](#), [30 Gbps wireless speeds](#)), Reliability & Latency, and IoT, including Low Power Wide Area (LPWA) Network Technologies. As a result, TELUS is committed to a standards-based deployment of LPWA LTE-M with pilot customers in the second half of 2017. In 2016, TELUS successfully demonstrated a [Smart Parking application](#) as part of its LPWA plan.

www.TELUS.com

Verizon

Verizon became the first carrier in the world to deploy LTE Cat M1 commercially, launched in December 2016. Verizon will complete nationwide U.S. coverage of LTE Cat M1 by the end of Q1 2017. The carrier works with industry-leading partners, and in 2016, certified the world's first Cat M1 chipset and module.

www.verizon.com

Addressing LPWA connectivity requirements of key verticals

LTE-M is part of Mobile IoT solutions based on 3GPP standard release 13 released in June 2016. It introduces a new Category M1 device optimised for the IoT able to address the LPWA connectivity requirements of key verticals.

Thanks to the easy roll-out capability of LTE-M technology (via software upgrade of existing 4G LTE networks), customers will benefit from a coverage in these respective countries at the time of the launch of LTE-M in respective markets.

LTE-M technology will connect, in a secure and scalable way, a wide variety of IoT devices/ objects such as smart utility meters, asset monitoring trackers, vending machines, alarm systems, fleet of vehicles, heavy equipment, mHealth, oil and gas monitoring and control, agriculture and wearables.

Key features expected from LTE-M are:

- Cat M1 Chipset / module optimised for IoT with a target reduction of complexity and cost over existing LTE Cat 4/1 modules
- Longer battery life; up to 10 years for certain enabled IoT devices when using additional features such as Power Saving Mode, eDRX feature
- Extended coverage compared to LTE for IoT devices underground and deep inside buildings
- Support of Mobility and Voice services enabling the use for wearables and safety related object

- ENDS -

For more information, contact:

AT&T: Jessica Swain, jessica.swain@att.com, +1 415 613 4267
KDDI: Yukiko Habu, yu-habu@kddi.com, +81 3 6678 0690
KPN: Stijn Wesselink, stijn.wesselink@kpn.com, +3170 44 66 300
NTT DOCOMO: Aya Hokamura, press_event@nttdocomo.com, +81 3 5156 1366
Orange: Vanessa Clarke, vanessa.clarke@orange.com, +44 7818 848 848
Telefónica: Corporate Communications Department, prensatelefonica@telefonica.com
+34 91 482 38 00
Telstra: Jon Court, jon.court@team.telstra.com, +61408423516
TELUS: Richard Gilhooley, richard.gilhooley@telus.com, +1 (778) 868 0235
Verizon: Marc Tracey, marc.tracey@verizon.com, +1 908 307 8378

About AT&T

AT&T Inc. (NYSE:T) helps millions around the globe connect with leading entertainment, business, mobile and high speed internet services. We offer the nation's best data network* and the best global coverage of any U.S. wireless provider.** We're one of the world's largest providers of pay TV. We have TV customers in the U.S. and 11 Latin American countries. Nearly 3.5 million companies, from small to large businesses around the globe, turn to AT&T for our highly secure smart solutions. Additional information about AT&T products and services is available at <http://about.att.com>. Follow our news on Twitter at @ATT, on Facebook at <http://www.facebook.com/att> and YouTube at <http://www.youtube.com/att>. © 2017 AT&T Intellectual Property. All rights reserved. AT&T, the Globe logo and other marks are trademarks and service marks of AT&T Intellectual Property and/or AT&T affiliated companies. All other marks contained herein are the property of their respective owners. *Claim based on the Nielsen Certified Data Network Score. Score includes data reported by wireless consumers in the Nielsen Mobile Insights survey, network measurements from Nielsen Mobile Performance and Nielsen Drive Test Benchmarks for Q3+Q4 2016 across 121 markets. **Global coverage claim based on offering discounted voice and data roaming; LTE roaming; and voice roaming in more countries than any other U.S. based carrier. International service required. Coverage not available in all areas. Coverage may vary per country and be limited/restricted in some countries.

About KDDI

KDDI, a comprehensive communications company offering fixed-line and mobile communications services, strives to be a leading company for changing times. For individual customers, KDDI offers its mobile communications (mobile phone) and fixed-line communications (broadband Internet/telephone) services under the brand name au, helping to realize Fixed Mobile and Broadcasting Convergence (FMBC). For business clients, KDDI provides comprehensive Information and Communications services, from Fixed Mobile Convergence (FMC) networks to data centers, applications, and security strategies, which help clients strengthen their businesses. For more information please visit <http://www.kddi.com/english>.

About KPN

KPN is the leading telecommunications and ICT provider in The Netherlands, offering fixed and mobile telephony, fixed and mobile broadband internet and TV to retail consumers. KPN is also market leader in The Netherlands in ICT services, infrastructure and network related ICT solutions to business customers, including other telecommunications operators. KPN also provides wholesale network services to third parties and operates an IP-based infrastructure for international wholesale customers through iBasis.

About NTT DOCOMO

NTT DOCOMO provides innovative, convenient and secure mobile services that enable smarter living for each customer. The company serves over 73 million mobile customers in Japan via advanced wireless networks, including a nationwide LTE network and one of the world's most progressive LTE-Advanced networks. DOCOMO is a leading developer of a 5G network that it plans to deploy by 2020, as well as network function virtualization (NFV), NFC infrastructure and services, emerging IoT solutions, and more. Outside Japan, the company is providing technical and operational expertise to seven mobile operators and other partner companies, and is contributing to the global standardization of all-new mobile technologies. DOCOMO is listed on stock exchanges in Tokyo (9437) and New York (DCM). Please visit <https://www.nttdocomo.co.jp/english/>.

About Orange

Orange is one of the world's leading telecommunications operators with sales of 40,9 billion euros in 2016 and 155,000 employees worldwide at 31 December 2016, including 96,000 employees in France. Present in 29 countries, the Group has a total customer base of 263 million customers worldwide at 31 December 2016, including 202 million mobile customers and 18 million fixed broadband customers. Orange is also a leading provider of global IT and telecommunication services to multinational companies, under the brand Orange Business Services. In March 2015, the Group presented its new strategic plan "Essentials2020" which places customer experience at the heart of its strategy with the aim of allowing them to benefit fully from the digital universe and the power of its new generation networks. Orange is listed on Euronext Paris (symbol ORA) and on the New York Stock Exchange (symbol ORAN). For more information on the internet and on your mobile: www.orange.com, www.orange-business.com or to follow us on Twitter: @orangegroup. Orange and any other Orange product or service names included in this material are trademarks of Orange or Orange Brand Services Limited.

About Telefónica

Telefónica is one of the largest telecommunications companies in the world by market capitalization and number of customers with a comprehensive offering and quality of connectivity that is delivered over world class fixed, mobile and broadband networks. As a growing company it prides itself on providing a differential experience based both on its corporate values and a public position that defends customer interests. The company has a significant presence in 21 countries and over 349 million accesses around the world. Telefónica has a strong presence in Spain, Europe and Latin America, where the company focuses an important part of its growth strategy. Telefónica IoT is the Internet of Things global business unit at Telefónica, dedicated to developing and implementing IoT solutions in all industry segments. For more information about Telefónica IoT: visit iot.telefonica.com or follow us on twitter @telefonicaloT or on LinkedIn.

About Telstra

Telstra is a leading telecommunications and information services company. We offer a full range of services and compete in all telecommunications markets in Australia, operating the largest mobile and Wi-Fi networks. Globally, we provide end-to-end solutions including [managed network services](#), [global connectivity](#), [cloud](#), [voice](#), [colocation](#), [conferencing](#) and [satellite solutions](#). For more information visit www.telstra.com.

About TELUS

TELUS (TSX: T, NYSE: TU) is Canada's fastest-growing national telecommunications company, with \$12.8 billion of annual revenue and 12.7 million subscriber connections, including 8.6 million wireless subscribers, 1.7 million high-speed Internet subscribers, 1.4 million residential network access lines and more than 1.0 million TELUS TV customers. TELUS provides a wide range of communications products and services, including wireless, data, Internet protocol (IP), voice, television, entertainment and video, and is Canada's largest healthcare IT provider. In support of our philosophy to give where we live, TELUS, our team members and retirees have contributed over \$482 million to charitable and not-for-profit organizations and volunteered more than 1 million days of service to local communities since 2000. TELUS' 12 Canadian community boards and 5 International boards have led the Company's support of grassroots charities and have contributed more than \$60 million in support of 5,595 local charitable projects, enriching the lives of more than 2 million children and youth, annually. TELUS was honoured to be named the most outstanding philanthropic corporation globally for 2010 by the Association of Fundraising Professionals, becoming the first Canadian company to receive this prestigious international recognition. TELUS has been named to the Dow Jones Sustainability Index for the past 16 years, a feat unequalled by any other North American telecommunications company. As detailed in our TELUS Sustainability Report, our commitment to sustainability is inspired by nature to ensure a healthier future for us all. For more information about TELUS, please visit TELUS.com

About Verizon

Verizon Communications Inc. (NYSE, Nasdaq: VZ), headquartered in New York City, has a diverse workforce of 160,900 and generated nearly \$126 billion in 2016 revenues. Verizon operates America's most reliable wireless network, with 114.2 million retail connections nationwide. The company also provides communications and entertainment services over mobile broadband and the nation's premier all-fiber network, and delivers integrated business solutions to customers worldwide.

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