5G key to unlocking Internet of Things... but not yet

February 22 2016, by Erwan Lucas

Visitors test the 'Oculus VR' virtual device on the Samsung stand at the Mobile World Congress in Barcelona on February 22, 2016

5G will massively speed up the Internet and unlock the Internet of Things—making driverless cars and talking fridges a reality—but experts warn plenty of hurdles remain.

The fifth generation of mobile networks should permit devices to

connect over the Internet, allowing them talk to us, to applications—and each other.

5G is the term on everyone's lips at the Mobile World Congress in Barcelona and a global race to develop it is under way.

"4G was an improvement on 3G, with more speed but it basically came from the same sphere, while 5G has aspirations to solve a whole range of uses which are outside that sphere," said Viktor Arvidsson, head of strategy for Ericsson France.

In the future, 5G could have a whole range of applications underpinning the Internet of Things—the increasing inter-connection of everyday appliances—with uses as varied as transport, health or industrial machinery, for which 4G is completely unadapted.

Frederic Pujol, a technology expert at the IDATE consulting firm, said: "The network must adapt both to very high speeds and enormous capacity and at the same time, to the billions of objects that do not communicate very often."

Connection speeds will be slashed through the use of a wider bandwidth, and an ever-larger network of masts and aerials, but also thanks to the convergence of fixed and mobile networks.

A boy tests the 'Oculus VR' virtual device, at the Deutsche Telekom stand

But 5G will require massive investment to create a truly global network.

'5G can stop car quickly'

Merouane Debbah, the head of the Paris-based Mathematical and Algorithmic Sciences Lab of Chinese telecoms company Huawei, gave the example of a driverless car being controlled by the Internet—with the connection speeds that 4G can manage, a vehicle travelling at 100 kilometres per hour (62 miles per hour) would travel another three metres before the brakes were applied.

A visitor takes photos of the new Sony smartphone "Sony Xperia XA" at the Mobile World Congress

"With 5G, it will be just a few centimetres. But to get that, you would need 99.9 percent network coverage around the globe," Debbah said.

Such an exciting leap in technology is whetting appetites and in Europe, the METIS 2020 project is helping to prepare the continent for 5G by bringing together 30 European and global players in the sector.

The next step will be taken by the European Commission-backed 5GPPP, or 5G Infrastructure Public Private Partnership, a consortium which will seek to develop technical solutions to the myriad of potential uses for 5G.

Visitors arrive at the Mobile World Congress in Barcelona, on February 22, 2016

The EU is considering putting up to 700 million euros ($772 million) into the 5GPPP alongside 3.0 billion euros of private sector funding.

"For the European Union, financing this kind of project allows it to achieve a standardisation that it can then push out across the world. If we can build a complete system with all of the eventualities identified, it would give us a head start," said Charbel Abdel Nour, a researcher at Telecom Bretagne, which is part of the 5GPPP consortium.

So a global race is on, and Asia is set to play a major role with large-scale tests due to take place in South Korea to coincide with the 2018 PyeongChang Winter Olympics and then in Japan for the Summer Olympics in Tokyo two years later.

Not to be outdone, US telecoms giants AT&T and Verizon announced plans this month to begin testing 5G networks.