

Satellites for 5G to connect delivery vans seamlessly

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A vehicle that remains continuously connected even when in remote areas is being road tested in Cornwall in the south west of the UK. The test vehicle will use ubiquitous communications technology to switch seamlessly between 5G and satellite networks as required. The technology was developed by Darwin Innovation Group, in collaboration with mobile telephone operator Virgin Media O2, satellite operator Hispasat, cloud data company Amazon Web Services, the

UK Space Agency and ESA. Satellites can support connectivity in areas where mobile networks are not available, as broadband can be used almost anywhere with a clear line of sight to the sky. This makes it well suited to offer a good connection for the countryside, villages, parks and areas of outstanding natural beauty – places where the terrestrial network rollout is likely to take some time, or where restrictions exist on the construction of new masts. Credit: European Space Agency

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Cornwall was chosen for the trial because it provides a challenge. It has some gaps in [mobile coverage](#), and it also has a landscape that presents challenges for satellite coverage, as hills or vegetation may at times mean that there's no clear line of sight to a satellite. This means the van will need to switch between both technologies as needed.

If neither 5G nor satellite networks are available, the telematics and air-quality data the van produces will be stored on board and transmitted as soon as it's able to connect again.

Reliable, high-capacity broadband on the move has many uses. Not only could it be used to direct delivery vans, it could also be used by mobile health clinics to offer on-the-spot treatment to patients who need immediate care or who live in isolated areas. With a reliable internet connection, patients and paramedics can consult remotely with medical experts over video calls.

On-demand shuttle services could offer public transport in rural areas where regular bus services are economically impractical. The shuttle could receive real-time requests from passengers going to a particular destination and alter its route to pick people up.

Passengers could also use reliable connectivity to keep themselves entertained during a journey, by streaming television, playing online games or making video calls.

Rodrigo Barreto, Enterprise Architect at Darwin, said: "After months of researching, developing, building and testing, we are showing what Darwin's mobility solution is capable of—with the beautiful scenery of Cornwall as the background. A great amount of knowledge has been accumulated getting to where we are now, and this sets us on a great course for our upcoming trials with a driverless shuttle at Harwell Campus in Oxfordshire and for our next steps in our collaboration with ESA."

Sergio Budkin, director of market development at Virgin Media O₂, said: "We are very excited to trial these technologies in a very challenging environment. We have been supporting Darwin R&D with ESA to bring this technology to market and we are very confident that it

will provide UK companies with a technological advantage to reshape the way in which they create value."

Inés Sanz, head of customer engineering at Hispasat, said: "We are delighted to participate in the Darwin project. For Hispasat, it is an excellent opportunity to show that [satellite](#) technology allows perfect connectivity in mobility environments, being a key element for autonomous vehicles where terrestrial coverage doesn't exist or doesn't have sufficient capacity. We are convinced that satellites will play a crucial role in the extension of 5G networks."

Elodie Viau, director of telecommunications and integrated applications at the European Space Agency, said: "The Darwin project will enable logistics to become fully digital while reducing carbon emissions. We need to get data all the time, everywhere—and, to achieve that, space must be seamlessly integrated into terrestrial 5G solutions."

"I am excited to see Darwin in action, proving that investment in space benefits not only the logistics industry, but also people ranging from shoppers seeking to buy a wide selection of goods at reasonable prices to patients benefiting from remote diagnosis."

Provided by European Space Agency

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