5G DRIVE. A problem worth solving.

The UK government, through its FRANC programme, has been seeking ways to improve the diversity of RAN vendors in the telecoms marketplace.

Cisco joined Virgin Media O2 and its partners to propose the “5GDRIVE” competition bid, established on the hypothesis that, to significantly diversify the RAN vendor supply chain, it must become easier to deploy 3GPP based mobility solutions into private networks. By focusing on mechanisms to increase service provider led deployments of private 4G / 5G, the RAN ecosystem, particularly the non-tier 1 vendors, will have a far easier path to wide scale deployment in the market, thus diversifying the vendor ecosystem at scale.

5GDRIVE is a co-funded collaboration with the UK government (DCMS), the project is led by Virgin Media O2, with key industry partners Wave Mobile, Ori, University of Warwick, and Cisco. The partners believe that there are several levers that can be pulled to address this challenge. Simplification of private 5G solutions, from both the perspective of enterprise IT managers and mobile operators, will be important. Reducing the deployment costs and the deployment times will also play a key role in expanding the market. And by leveraging roaming frameworks for connectivity between public and private networks, we believe we can demonstrate high quality secure network interconnects that are simpler and more cost effective than other integration approaches as a service demarcation point. By studying scalability and security enhancements, and contrasting those with public international roaming mechanisms, we seek to understand how best to connect private networks at scale.

At Cisco, we think this is a good approach; an approach worth investing in. The 5GDRIVE project has the right partners with the right credentials and attitude to move the needle, and we’re excited to be a part of it.

Virgin Media O2 has recognised problems with tightly coupled approaches when integrating private networks into their public macro service. Constructs like Multi Operator Core Network (MOCN) are expensive to deploy and operate. There are “scale-down” challenges for smaller venues, and there are significant cost and complexity commitments needed for each new radio vendor. As part of its mission to upgrade the UK, the Virgin Media O2 team is always looking to innovate, working with partners to explore new ideas.

Wave Mobile are a small MVNO, RAN vendor and technical lead for the project. They solve “not spots” on behalf of operators and venues alike, so new models for interconnect are at the heart of their business. They are open and technically minded: the kind of people we like to work with.

Ori automate platform deployments which is important if private 5G networks are to scale economically.

The University of Warwick is recognised as an NCSC Academic Centre of Excellence in Cyber Security Research and have vast experience in fundamental and applied research in cyber security and resilience. The team come from the world leading research and education group, WMG - an academic department of the University of Warwick, and will play a key role in setting the right security posture and assessing solutions and concepts that we bring to the table.

But why did Cisco join? We believe that if 5G networks are as simple (and cost effective) to order, deploy and operate as Wi-Fi is today, then the market will expand. There are enough real use cases across multiple sectors now that have real needs for private 5G networks and as long as partners can integrate 5G into their customers' enterprise networks, then these use cases will drive adoption. By deploying private 5G as a Service, (P5GaaS) Cisco wants to remove the friction. Our customers don't care about 3GPP nomenclature. They care about their business outcomes. We give them the tools to manage these outcomes regardless of the type of wireless network; 5G or Wi-Fi, public or private.

But we joined not just to address simplicity, but also scaling. We already have some experience scaling the interconnections between private wireless networks. In partnership with the Wireless Broadband Alliance, we have spent a lot of time figuring out how to scale up roaming to support automatic onboarding of devices onto Wi-Fi networks. Starting with hotspot 2.0 and Passpoint, and now evolving towards OpenRoaming, we learned that to succeed, solutions need to address technical, legal, and financial challenges. Solve any one of them in isolation, and you probably still don't have a solution that can work. Attempt to address all of them and you might just get an ecosystem kick-started that can scale. And this isn't just about enabling massive deployments but developing solutions that can deal with the small as well as the large; not every private 5G network will be a port or a stadium. Adoption of OpenRoaming solutions is starting to accelerate, with WBA estimating that over one million private hotspots have been integrated into the federation, and so there is conjecture that it may work for private 5G too. The technology protocols are different, but the problem statement is similar, and the solution set will equally need to cover technology, legal and financial elements. We will explore this with our 5GDRIVE project partners.

5GDRIVE has already demonstrated our first public 5G to private 5G roaming data session thanks to great early work from Wave Mobile particularly. We have begun describing challenges and solutions to scaling public roaming into private networks. The next step will be to enhance our labs to demonstrate some of these new solution components across Cisco, Wave Mobile, Virgin Media O2 labs and even customer trialists. All the time, building that knowledge base, and working through what work items should happen where, both from a deployment perspective and from a standards and fora perspective.

If we succeed, in the long term, many more SMEs can benefit from private 5G networks; with an estimated 5.6 million SMEs in the UK, that is a substantial business opportunity. ABI Research estimates private networks will represent a growing market worth circa $109B by 2030. Other research conducted by OMDIA & Kaleido last year would suggest that 84% of enterprises expect hybrid public / private solutions.

The roaming architectures constructed between public networks have proven to drive the entire ecosystem, finally resulting in a unified global standard supported by all devices and all networks worldwide. This has resulted in an ecosystem supporting billions of dollars of direct and indirect revenue, wealth, and wellbeing. This was not always the case!

This project is examining how to build the same capability for private networks at massive scale.

The outcomes in terms of revenue, wealth and wellbeing may be too nebulous to assess at this early stage, however our partners believe it to be significant and global in nature.

A problem worth solving indeed.

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