PLEXUS WIFI

ARC INTERNATIONAL LTD

Infrastructure Telecoms Renewables Unified

Wireless Fibre for Local Councils

Arc International Ltd
Plexus Wifi Solution

WWW.ARCINTERNATIONALLTD.COM

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INTRODUCTION TO ARC INTERNATIONAL LTD & PLEXUS WIFI

Arc International Ltd is the merging of 'City Wifi UK Ltd and 'Solumi' and is joined to a subsidiary in Zambia called 'Solar Powered Wifi', a solar-powered LED street lighting company. The companies have been developing solar-powered telecom networks to deliver high capacity infrastructure for the past 5 years.

Over the years we have developed metropolitan networks for the UK and most recently the African continent that have required resilient alternative power solutions. As a result we have created a carbon neutral environmentally friendly way to revolutionise telecoms. Enter the 'Plexus Wifi' solution, a solar powered, scalable to city-wide, gigabit Wifi network.

Our innovations in network deployment have further allowed us to deploy transformational technology, achieving phenomenal connectivity speeds with low latency while creating opportunities to monetise and efficiently operate internet services and infrastructure.

Our expertise in regard to this particular project stems from the core business team originating from broadcast radio, BT and national ISPs in the UK and leading telecoms organisations such as Vodafone and Nokia.

The Problem

BDUK, a department within the government branch 'Digital Culture Media and Sport' (DCMS) has publicised an agenda to connect 95% of UK homes to 'superfast' broadband (speeds >24Mbps), with Local Full Fibre Network (LFFN) a key part of the implementation. Compared to much of mainland Europe, the UK scores poorly on fibre connection penetration and average download speed received to the home.

British residents in rural areas commonly suffer a severe lack of fast affordable internet to purchase reliable high capacity internet access. ISPs urgently need to address the demand with a cost-effective solution that scales well AND delivers for current and future speed demands.

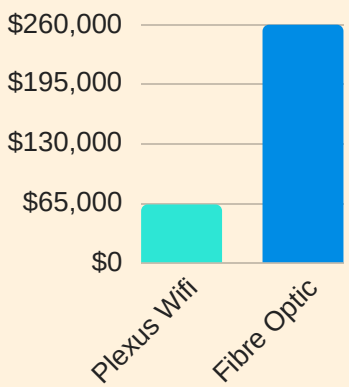
Much of the UK's population live in rural settlements with residents numbering from less than a hundred to 35,000. The natural solution would be fibre but the cost of laying fibre for scattered small towns spread across rural landscapes is financially and logistically challenging, often making fibre deployment economically unviable and, even if they are viable, they may take many months, or even years to complete.

4G solutions are unable to deliver sufficient bandwidth and cost-effective coverage and 5G is still in development but so far has proved to be the wrong solution for rural development as it requires 10x more masts and each mast needs fibre for internet bandwidth.

An additional challenge with the traditional cabled approach is that each new customer has to have a physical attendance from a qualified technician to connect the property to the cabinet and then install a router device to allow homes to access the internet. This can be extremely expensive for ISPs, making customer acquisition and growth commercially unsustainable.

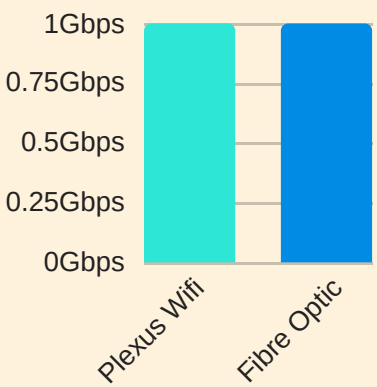
This makes DCMS's mandate an ambitious one which will require solutions beyond fibre to succeed.

The Cost of Deployment: Plexus Wifi VS Fibre



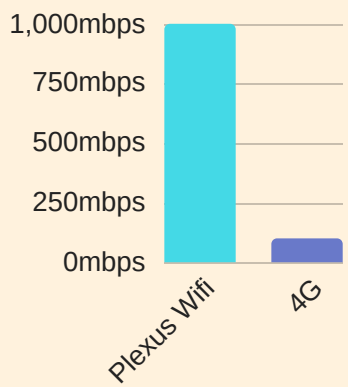
(10km fibre link connecting 600 homes vs 1x Plexus Wifi mast deployment)

End User Speeds: Plexus Wifi VS Fibre



(Like for like service with CPE installed, subject to backhaul speeds and package)

End User Speeds: 4G VS Plexus Wifi



(These are maximum download speeds which are subject to back haul bandwidth and devices)

THE CURRENT SITUATION

Traditional Fibre isn't the solution we thought it would be...

TIME

- Fibre takes a long time to plan,
- It takes a long time to get permission to dig trenches,
- Fibre takes months, sometimes years, to install

MONEY

Fibre is expensive to purchase, at £5 per meter, with expensive specialist technical and construction teams and equipment to deploy

SUITABILITY

- Fibre isn't a viable option for all rural deployments.
- 8 million people live in communities too small for fibre to be economically viable

ACROSS THE UK, MANY HOMES AND LOCALITIES CAN'T GET PROPER BROADBAND

- Slow internet access
- Not enough bandwidth
- Inconsistent through the day and night

INCUMBENTS RELYING ON:

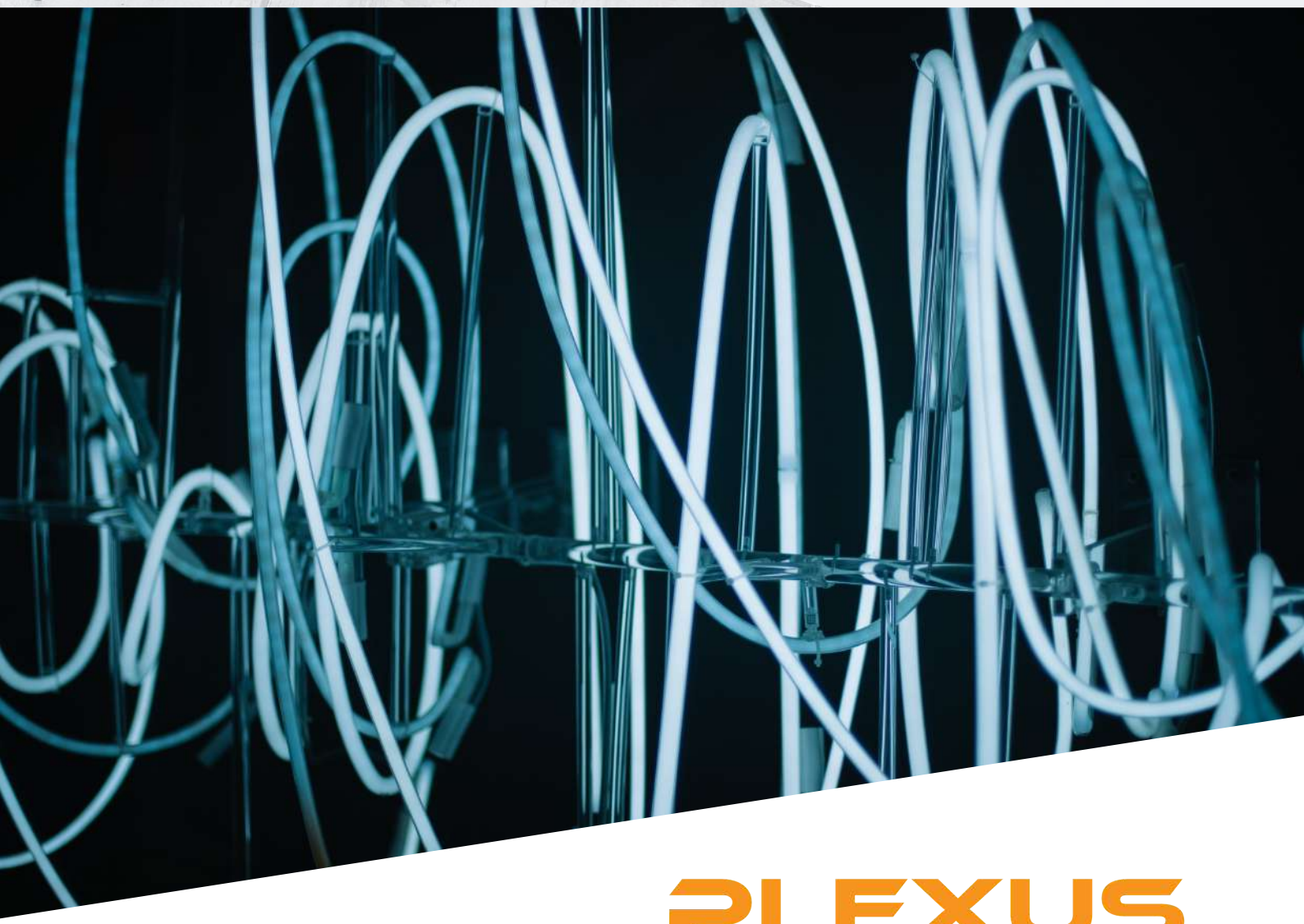
- Ageing copper last mile
- Patchy 4G rollout

NEW ARRIVALS STILL VERY LIMITED:

- Urban fibre to the home
- Rural fibre to the village

5G A LONG WAY OFF

- Won't solve the problem anyway



The Solution

Plexus Wifi is a cost-effective, ubiquitous system that transmits fibre optic speeds wireless over great distances and then covers whole villages, towns and even cities with Wifi signal. It is very scalable, fitting villages of as little as 50 homes up to the largest cities with millions of active internet users. This is achieved at a lower CAPEX and at least 80% faster deployment than traditional fibre while maintaining gigabit throughput, with the ability to deliver up to and over 100Mbps per user; the only limitation is the bandwidth on the backhaul.

The network requires no additional device installation at customer properties for superfast coverage (30Mbps), Plexus Wifi delivers a Wifi signal into homes via a mesh deployment. There is also a 'plus' option to have an on-premise device that increases bandwidth and offers the more traditional router arrangement (which comes with additional installation costs) allowing download speeds of over 2Gbps. This is useful for multi-tenant properties and businesses.

As the whole community is covered by Wifi, new users simply need to enable Wifi on their device (phone, tablet, PC or TV) and create an account online to get services instantly. This also breaks the barrier of elderly or vulnerable people needing to have strangers enter their homes.

THE PLEXUS WIFI SOLUTION

Plexus Wifi - Wireless Fibre & Community-wide 30+Mbps Wifi

FASTER DEPLOYMENT

A city the size of Birmingham with 4 million residents can be covered in as little as 12 weeks!

MORE COST EFFECT

Wireless Fibre needs no trenching and can can link over 10 miles in an afternoon

EXPERIENCE

Over 100Mbps max speeds for a customer, with instant signup and no installation visit needed

WHY PLEXUS WIFI...

THE PLEXUS WIFI SOLUTION ACHIEVES WHAT FIBRE CAN AND MORE, WHILE REMAINING; CHEAPER AND FASTER TO INSTALL, CHEAPER TO RUN AND POWERED BY SOLAR ENERGY.

LONG RANGE WIRELESS FIBRE CONNECTIONS TO BRING FIBRE OPTIC SPEEDS TO UNCONNECTED AREAS.

HIGH SPEED 'POINT TO MULTI POINT' WIRELESS CONNECTIONS FOR MULTI-TENANT PROPERTIES

COMMUNITY-WIDE BLANKET COVERAGE OF SUPERFAST WIFI

WHY PLEXUS WIFI CONT...

The BDUK application guidelines state a preference for projects with one of the key strengths listed below. The Plexus Wifi solution can confidently deliver on all three points.

RAPID MOBILISATION

We are ready for rapid mobilisation, our supply chain is in place, we will engage with Kier for our logistics and technical delivery nationwide to ensure we have the maximum capacity for a fast and efficient deployment by a skilled, technical team. Network planning for any location takes a matter of days and fast deployment is our unique advantage; we have designed the network to be self-configuring, self-healing and automated to begin delivering services straight away. The installation process simply requires mounting simple, discreet network nodes and connecting a power source. Each node searches the surrounding area for the core network and connects immediately.

The mounting of the physical devices take 25–45 minutes maximum. Within 3 to 5 minutes each node is serving superfast internet access and new customers just need to select the network name and signup for an account to choose their package. The network is cloud managed as we continuously monitor network growth and traffic in real time.

BARRIER BUSTING

We are barrier busting as our solution caters for properties not suitable for fibre and reaches those on the wrong side of the digital divide. All over the UK there are areas of natural beauty and conservation areas which will be harmed by traditional trenching for fibre and as such cannot achieve the permissions required to begin work in a timely fashion. These are the same areas that face many barriers, not only to internet connectivity but also with mobile connectivity as 4G mobile signals need fibre backhaul to deliver internet bandwidth; we provide a solution to this barrier also.

RURAL FOCUS

Plexus Wifi has been developed to operate seamlessly in very challenging environments and conditions such as Africa, Indonesia and South America. As such it has been designed to carry inner-city connectivity to hard-to-reach rural locations and deliver ubiquitous speeds of between 30mbps and 100mbps highly cost effectively.

The Benefits: Fibre Vs Wireless

The cost of Plexus Wifi's installation is up to 80% cheaper than fibre installation with comparable performance. It is also up to 10 times faster to deploy.

There is no need to purchase additional routers to install in each new customer's property. This is because the whole area is already covered by high speed Wifi that penetrates buildings giving direct access to all customers within coverage range. Customers wanting bandwidth over 100Mbps can opt for a router that can double their bandwidth and which can be offered as a premium option.

This means all homes are already connected and just need to create an account to instantly begin receiving superfast internet access. Our network installation has 99% homes passed in any geography we cover and has ZERO overhead to connect new customers in the coverage area, making it the most cost-effective deployment for towns and villages with smaller population numbers.

The Plexus Wifi solution is perfect for locations with populations as small as 50 homes. We can serve 100% of properties in around 4 weeks rather than the 4 to 6 months or more that it will take with fibre.

The network's high scalability is achieved by network nodes that self-configure and are powered by solar energy. Coverage can be designed and formed to the specific geography, allowing for even the most remote properties to receive gigabit speed internet.

Plexus Wifi is the perfect complement and extension to fibre when challenging locations make fibre unviable either economically or logistically.

Fibre - example

Fibre link from Nottingham City Centre to Tollerton or Ruddington is only approximately 7km or 4.5 miles. To lay fibre this distance costs approximately £45,000 GBP for fibre only.

Trenching cost (labour, machine hire, cabinets, materials) = circa £60,000 - £90,000 GBP.

Technician visit per property is approximately £90,000 (£150 x 600 properties).

Covering either Tollerton or Ruddington homes with fibre to the property will cost at least a further £90,000 investment in fibre, ancillary technology, and materials.

Router for each property cost between £15 to £30.

Total cost for deployment is over £300,000

Plexus Wifi - example

To connect Tollerton or Ruddington, providing every home with superfast Wifi, costs only £80,000 GBP using Plexus Wifi.

All homes are passed at no additional cost.

There is no obligatory additional router cost.

Total cost for each property connected is ZERO.

Total cost for deployment is around £80,000

WHY YOU, WHY NOW...

Let's work together

DCMS department 'Broadband Delivery UK' (BDUK) have allocated £190 million to invest in the LFFN project to connect more of the UK to gigabit speed internet (see below). £95 million has already been awarded and BT have reportedly refunded part of their funding as a result of earlier non-delivery using fibre.

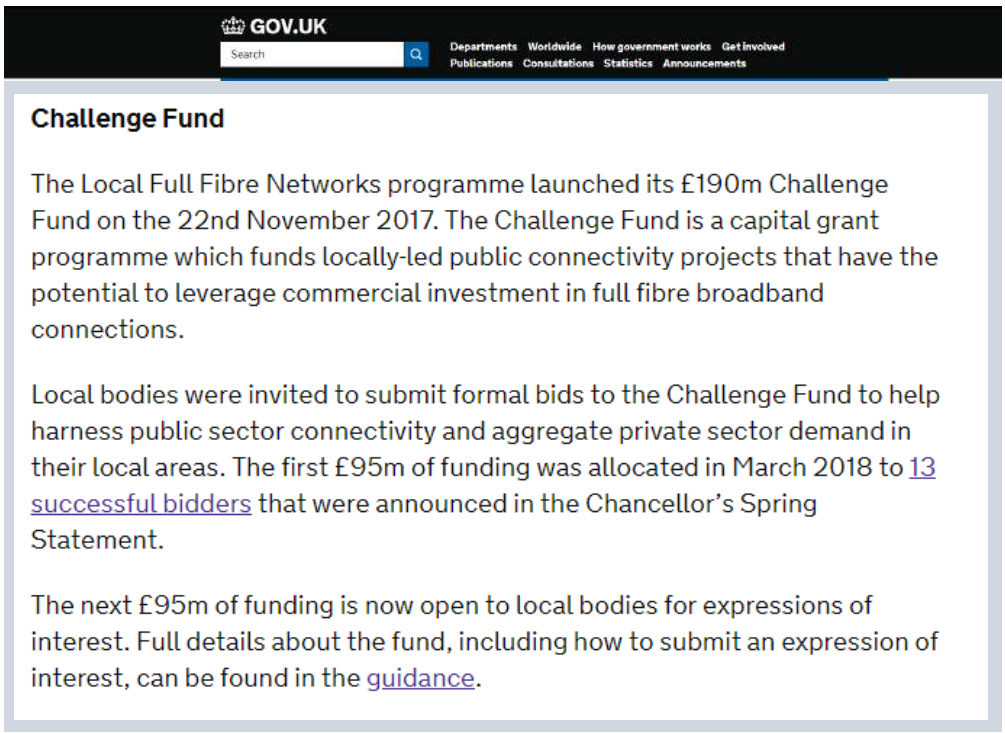
Applications for this funding is through local bodies; councils, parishes, villages and hamlets will grant you the resources to fund a Plexus Wifi deployment in your area.

We can connect your local community in a fraction of the time without digging up any roads, without affecting radio or TV transmissions, and without negatively impacting the natural beauty of our rural areas.

In an age of the rise of the Internet of Things and ubiquitous smart devices, from medical sensors to environmental monitors, alongside the inexorably rising demand for digital media, TV and communications, Plexus Wifi is a must for the present and the future.

BDUK Overview

Broadband Delivery UK (BDUK), part of the Department for Digital, Culture, Media and Sport, is delivering superfast broadband and local full fibre networks to the nation...
The next £95m of funding is now open to local bodies for expressions of interest. Full details about the fund, including how to submit an expression of interest, can be found in the guidance.



DOWNLOAD BDUK GUIDELINES HERE

Source: https://www.gov.uk/guidance/broadband-delivery-uk

Summary

Plexus Wifi is the most cost-effective way to bring fibre-like fast internet to communities outside main town centres without the high capital and time cost involved in laying fibre and connecting each property individually.

There are currently at least 27.1 million homes in the UK that have internet connection speeds below 10Mbps which become even slower at peak times. There are also approximately 8 million homes that either have connections slower than 2Mbps or no usable internet connections. We can change this!

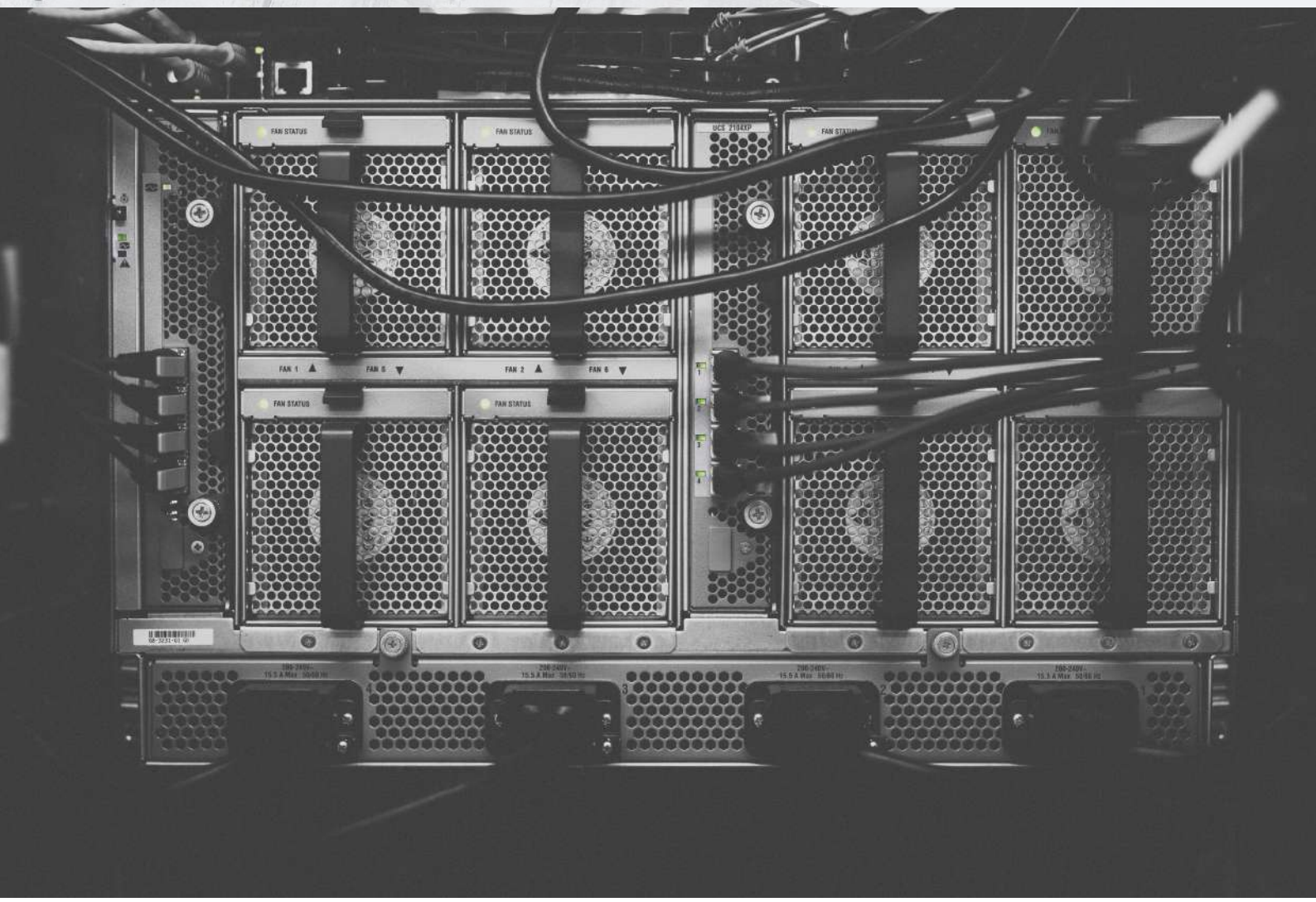
Using the Plexus Wifi solution, the BDUK target of 95% of the population receiving fibre speed internet within the next four years is truly achievable within schedule and within budget.

We are engaging with local bodies in order to deliver these projects because we conceived and designed this network to serve the communities forgotten by the big telecommunication companies first. Limited connectivity is a community issue and we believe the first step to empowerment is information and the richest source of information and empowerment in the 21st century is through digital communication!

We have engaged with Cambridgeshire County Council for a deployment and we are more than happy to assist in the application process.

Let's work together to empower our community now.

Lord Allan Kenneth Okello
CEO
Arc International Ltd



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