

Summary of the Rural Mobile Coverage Initiative

Background

Historically it has not been financially viable for the Mobile Network Operators [MNO's] to install mobile coverage to some rural communities because the initial Capex and long-term Opex costs outweigh the resultant revenue.

In February 2018 the National Church Institutions of the Church of England [CoE] and Her Majesty's Government published a joint Accord associated with the potential use of church buildings and land, to support the increasing need for internet and mobile signals throughout England.

- There is a CoE church in most rural villages and communities.
- A church is typically centrally located and is the tallest structure within a rural community.
- The NET CS antennas will be hidden behind GRP louvres with no unsightly visual impact on the church or community.
 - The typical alternative MNO coverage option in a rural community would be to install a greenfield tower or multiple Small Cells located on the chimneys of private homes.

The NET CS Solution

Working closely with the CoE and Active equipment manufacturers NET CS have determined a technical solution to facilitate multiple MNO 4G & 5G coverage solution where coverage, not capacity is the critical factor at a fraction of the cost of a traditional standalone MNO Macro site or multiple Small Cells.

In basic terms, utilising the CoE portfolio of over 16,500 church buildings, NET CS will deploy coverage in groups of typically 6 church sites.

At each of the 6 church sites NET CS will install 4 wideband antennas (1 behind each louvre opening in the church tower) and a 4-Band Zenic8-CrossFire RRU routed via fibre connectivity to 1 of the 6 churches where the MNO's BTS radio equipment will also be located together with a Zenic8 - CrossFire 4-Band AU and associated Attenuation used to separate and route the individual MNO frequency bands to each respective MNO BTS equipment cabinet/s.

At this location the MNO will install their own transmission links back to their respective network operational switch centres.

In simple terms, the NET CS solution is similar to a multiple MNO in-building Distributed Antenna System [DAS], such as East Village, the former 2012 Olympic Games athletes village where NET CS designed, installed and now maintain a DAS system where the MNO's BTS equipment is located in a purpose built equipment room in the basement of one of the high-rise apartment buildings with circa 12.5km of fibre routed from that location to 37 other high-rise buildings where NET CS have installed a DAS providing in-building coverage. The only difference with the NET CS rural solution is that instead of in-building coverage, the remote sites will be providing outdoor coverage – an ODAS solution.

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Because of the nature of the coverage solution NET CS will offer the coverage footprint achieved at each antenna location to the MNOs and NET CS will be responsible for maintaining that coverage footprint within agreed KPIs.

From the MNOs perspective, they will only require 1 lot of BTS equipment and only 1 transmission link for every 6 remote coverage locations.

On this basis, with all capital and operating expenditure considered, compared to 6 standalone MNO Macro sites, NET CS estimate each MNO will save over £600,000 in capital and over £70,000 in annual operating cost for every 6 NET CS sites.

[MNO operating expenditure savings will be even greater if more than 2 MNOs are utilising each group of 6 sites].

On a nationwide scale, assuming 50 groups of 6 sites (300 Mobile Coverage Not-Spots), the individual MNO Capex savings will be over £30-million, and the Opex savings will be over £90-million over the 25-year term of each agreement.

The MNOs will only be asked to pay the initial one-off Connection Fee and enter into a commercial agreement associated with the coverage footprint once NET CS have surveyed, designed and secured all the necessary CoE Faculty and Local Planning Authority approvals, therefore from the MNOs perspective the NET CS solution is risk-free.

From the CoE perspective, each church hosting the NET CS equipment will be providing a critical service to their local community, in accordance with the Accord, including the provision of Wi-Fi which NET CS will also facilitate, and the long-term rental income they will be paid will help each church to fulfil its wider local community mission, improving the sustainability of both the rural community and of its parish church.

Risks & Issues

NET CS's principal risk is the availability and the cost of the dedicated fibre connectivity from each remote 'Church Coverage Site' to the central 'BTS Hotel Church site'; to mitigate this risk NET CS have taken the following factors into account:

1. NET CS will initially concentrate its efforts on Not-Spot communities where there is poor or no mobile coverage but where fibre is available or can be made available at a reasonable cost.
 - It is hoped the DCMS funding for Broadband suppliers to install fixed fibre connectivity to rural communities will make fibre connectivity more readily available for NET CS to utilise.
2. At locations where Fibre connectivity is not currently available or where costs are too high, NET CS will work with the regional broadband suppliers to encourage them to bring forward their installation plans by contributing towards the initial installation Capex.

In such circumstances, from the Governments perspective the NET CS solution will not only help deliver 4G & 5G coverage nationwide, it will also make fixed broadband connectivity to rural communities more financially viable by providing rural broadband suppliers with a long-term high value singular customer with associated long term recurring revenue.