



Delivering rural capacity alongside coverage

Professor William Webb

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Rural coverage is steadily being resolved

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- SRN and other initiatives are delivering increasing rural coverage
- But this is generally using 4G and is delivered in sub 1GHz bands with large cells
- Implies limited capacity because sub GHz spectrum allocation relatively small and large cells will result in poor link budgets for most subscribers

Some users / applications may need more capacity

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- While individual consumers may cope with limited bandwidth (eg by using Wi-Fi for most communications), verticals may be constrained
- Rural applications might include:
 - Agriculture
 - Tourism
 - Mining
 - Forestry
 - Renewable energy
- Bandwidth needs might be driven by
 - Remote operation of machinery / vehicles
 - CCTV feeds
 - Drone surveillance
 - Dense network of IoT sensors
 - Ability to software update remote nodes

There are two key approaches for delivering capacity

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1. Rely on the MNOs to provide spot capacity when requested by a user
 - MNOs might use eg 3.5GHz band to deliver higher capacity in specific areas such as across a farm
 - But historically MNOs have not been responsive to the needs of small users
2. Self-provide systems
 - Could be provided by the user (eg farmer) or by a third party (eg an agricultural system integrator)
 - Allows for a tailored and self-controlled solution
 - Requires access to spectrum either in a shared band or in MNO spectrum (MNO preferred because of higher power levels giving greater range)

Possible way ahead

- Set up a system where rural users can “advertise” their needs to all MNOs, to SIs and others and can be provided with “DIY” advice
 - The user can then decide which options they prefer
- Provide a simple means to gain spectrum access rights from MNOs if they are not selected to provide the solution and shared spectrum is not suitable
- Potentially find means to sell spare capacity to others