



Rural Broadband Use Case

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Connecting the unconnected

The problem.....

~2.5million unconnected/poorly connected homes mostly some distance from an exchange

- not practical to lay cable (geographical reasons)
 - rural locations that are too expensive for fibre rollout
 - **the target is connect these homes using other means**
The 'Digital Inclusion Objective'
- White Space offers a solution



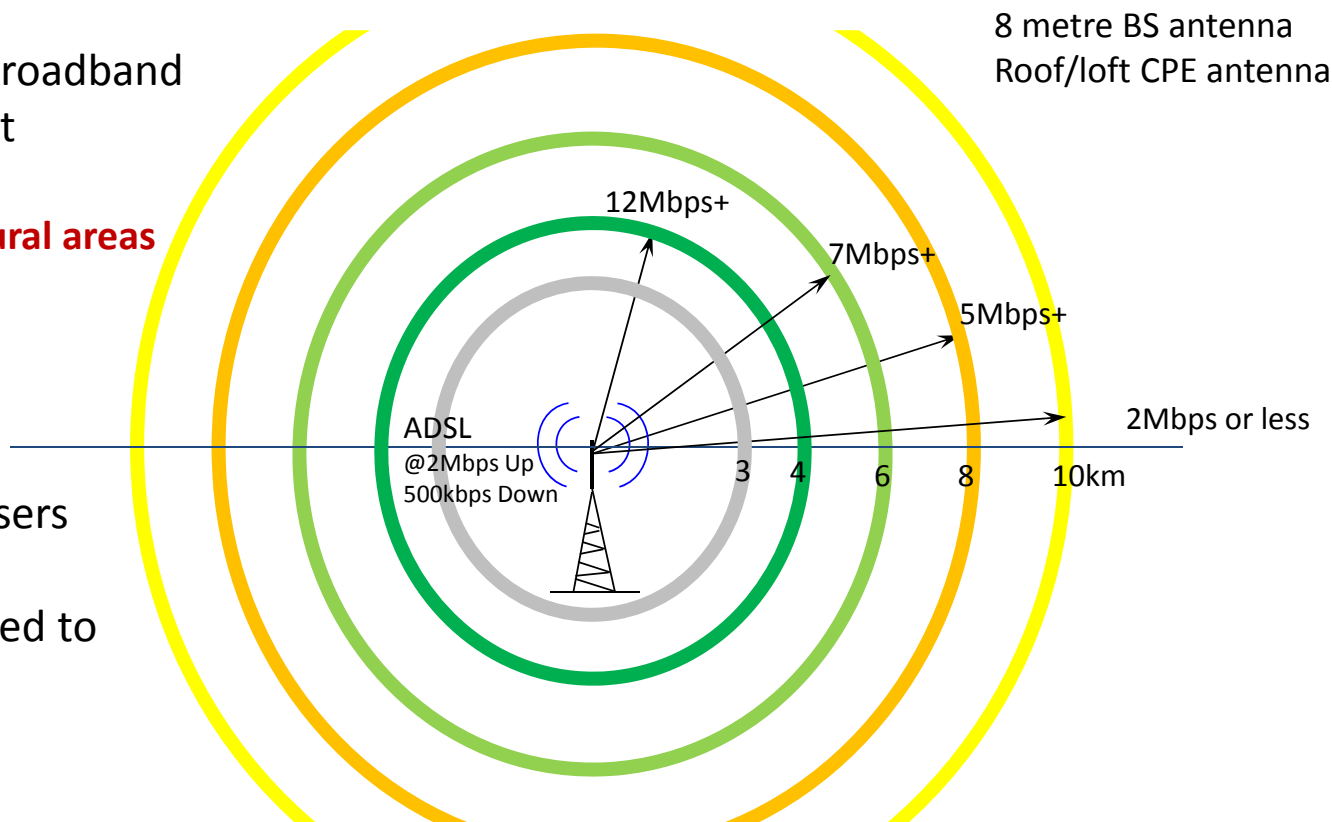
Broadband service possibilities

Advantages of TV white space for wireless broadband

- propagation performance is excellent
- lots of bandwidth available
- **>100MHz is available in most UK rural areas**
- doesn't need to go around corners

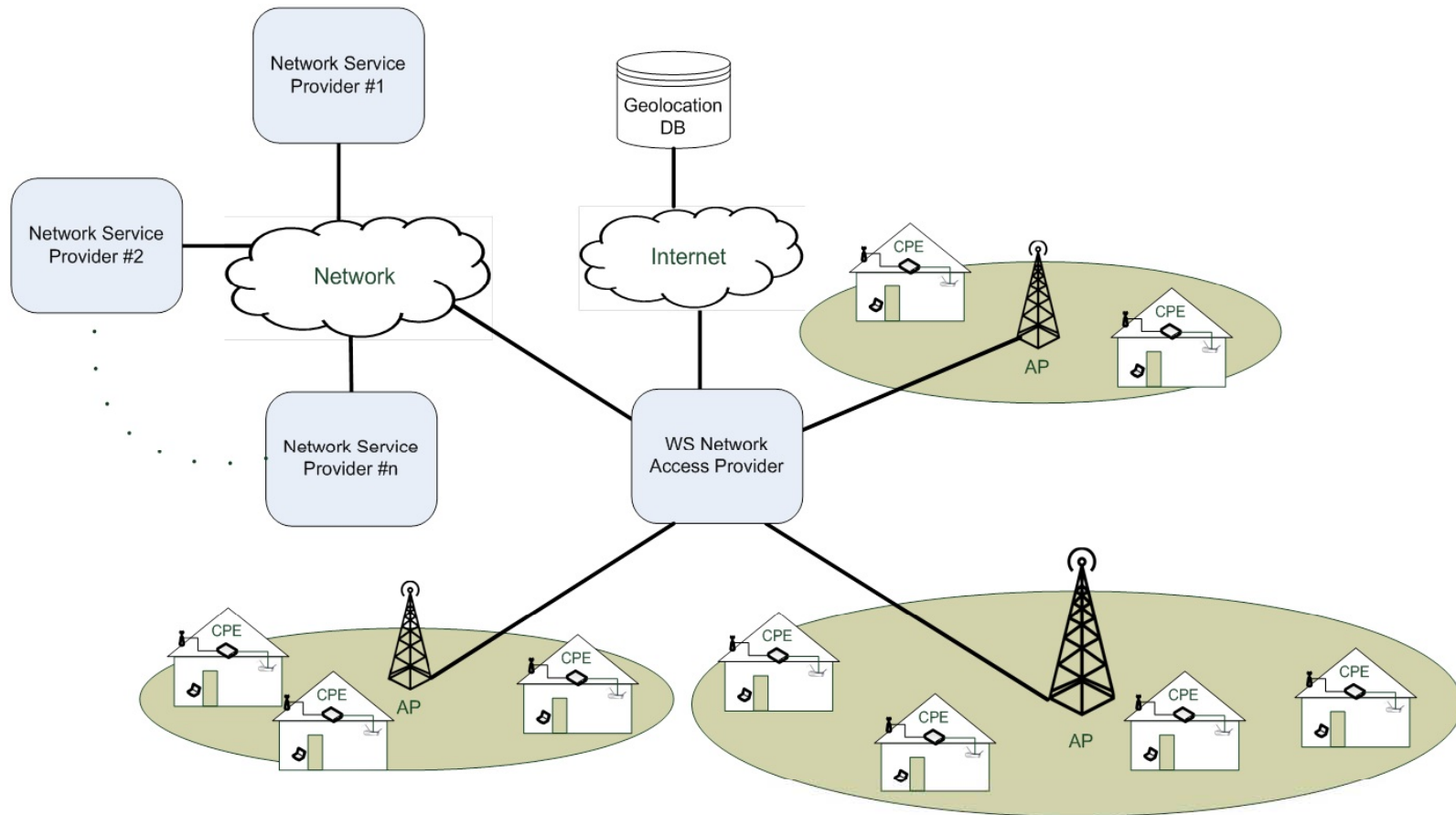
Anticipated equipment costs

- ~£1000 base station serving 10-20 users
- ~£100 consumer equipment
- Minimal infrastructure costs compared to fibre/cable



Anticipated **SYMMETRICAL** service using a **SINGLE TVWS CHANNEL**

Broadband service possibilities

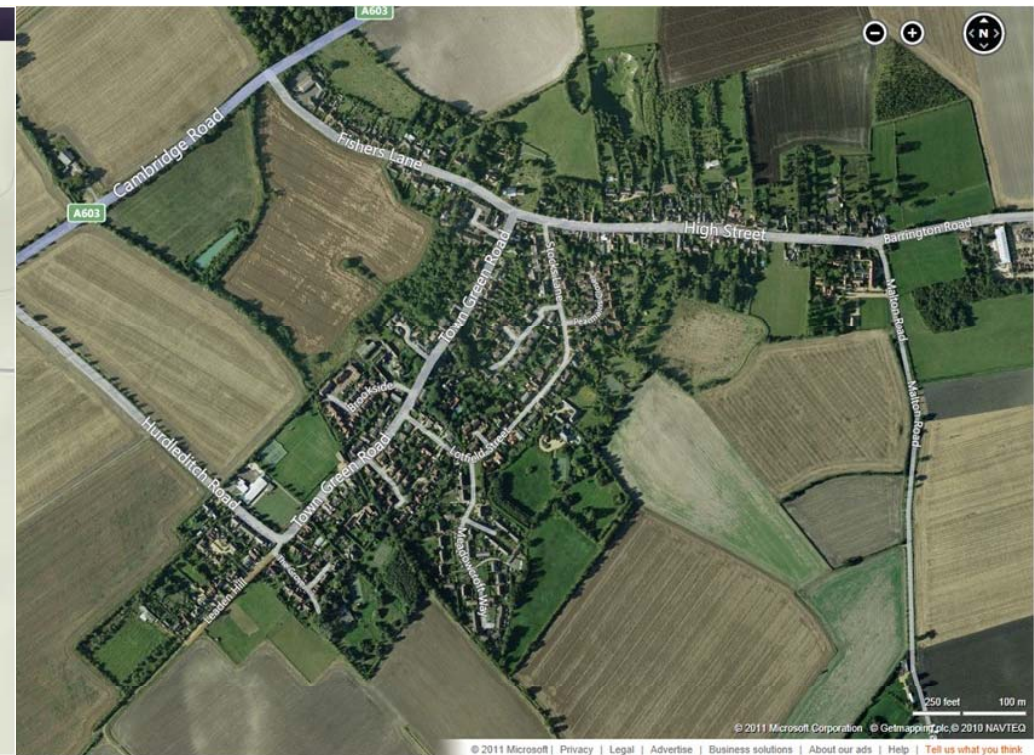
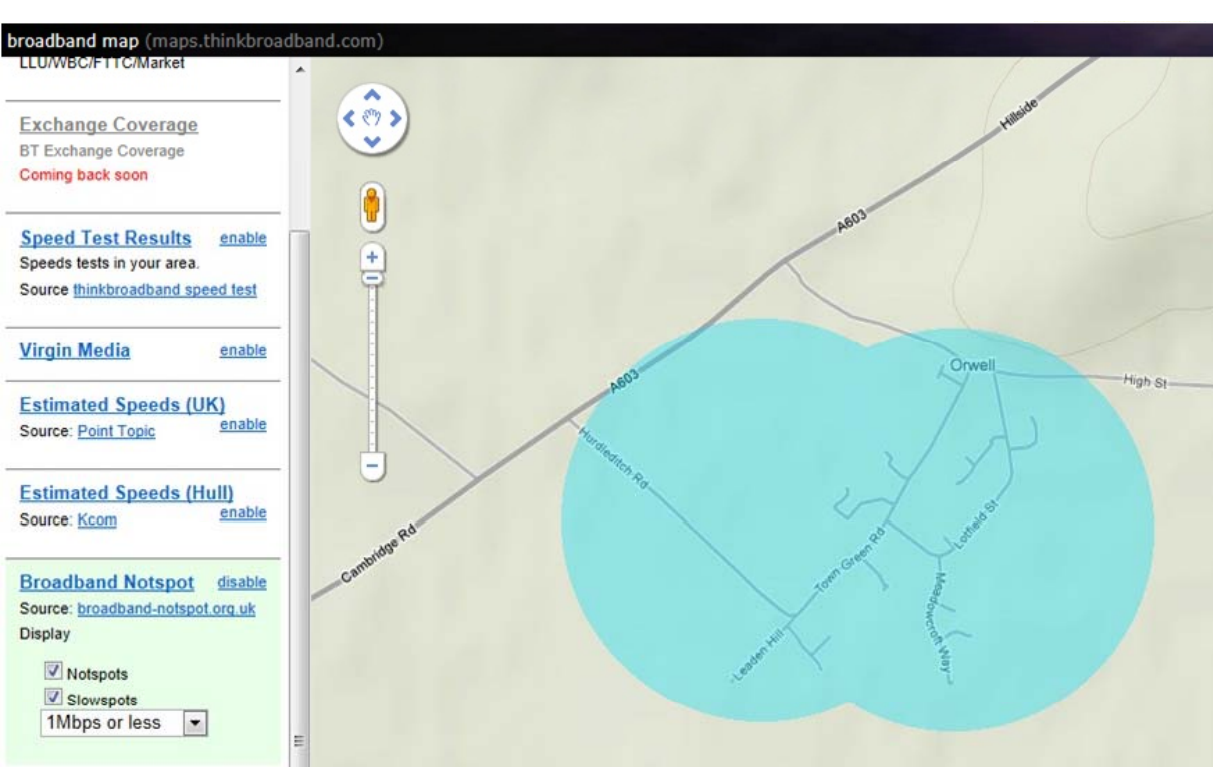


Rural broadband

Cambridge Trial Use Case

Rural broadband use case

Slow spot example: Orwell ADSL (<<1Mbps)



TTP to Orwell trial service

Distance

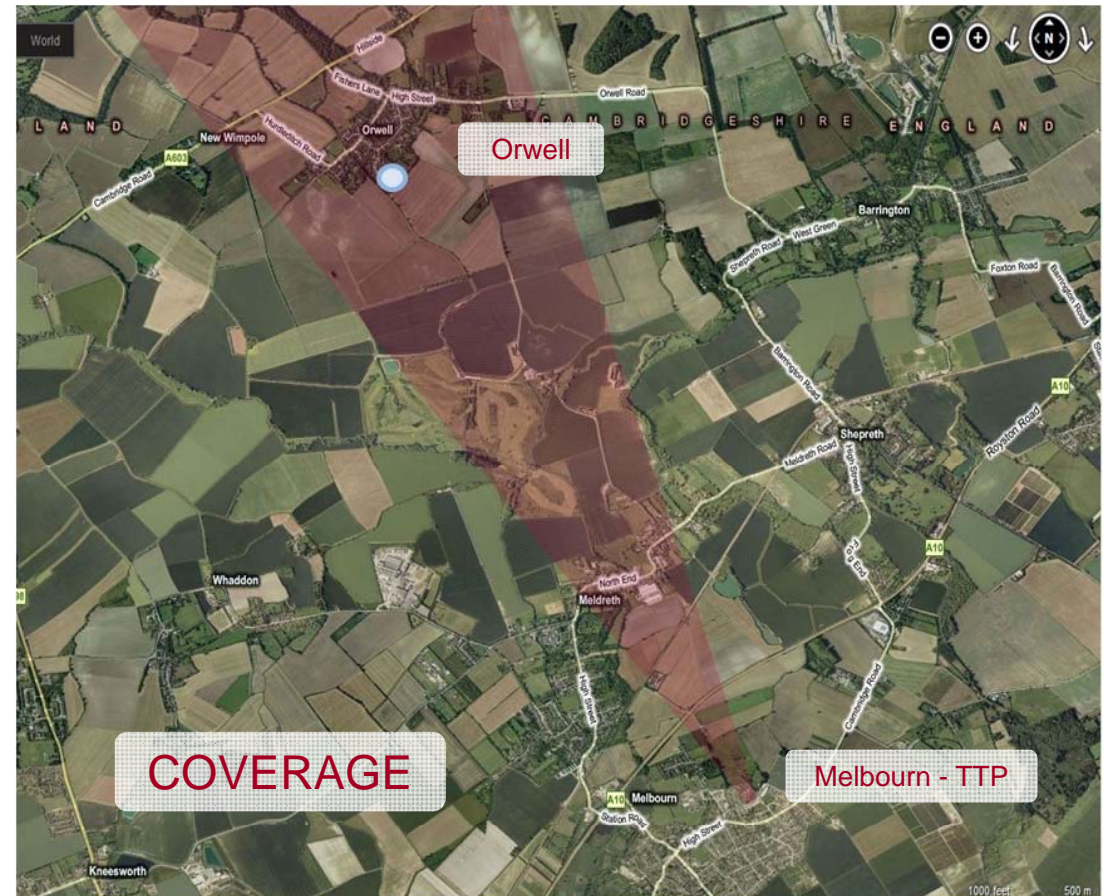
- 5.6km

Base station

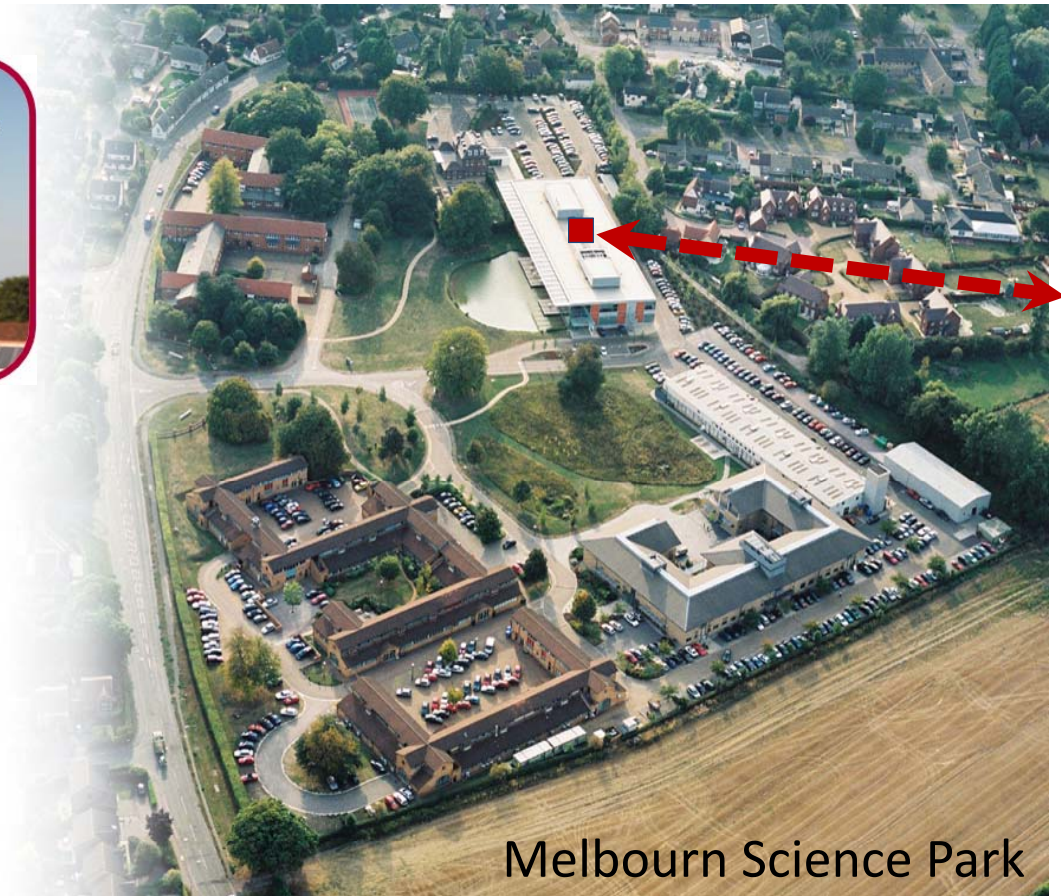
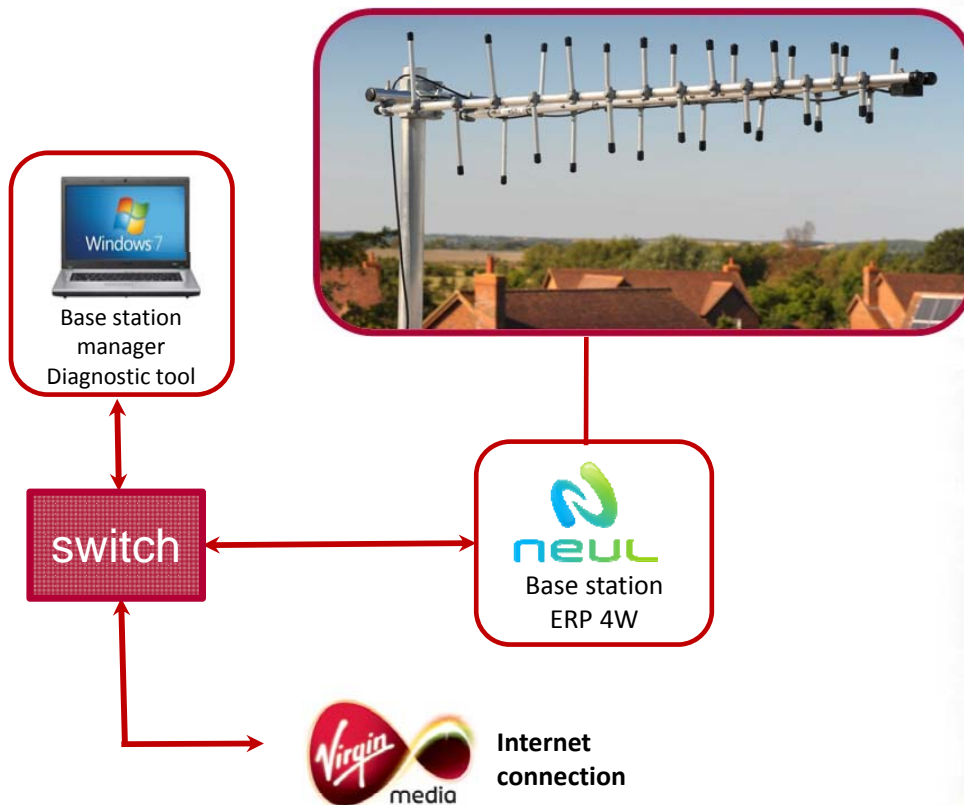
- single antenna
 - yagi 15dBi
 - ~12metres high on roof
 - 'sectorised' coverage
- 4 Watts output power
- internet backhaul

CPE/terminal

- loft antenna (log periodic)
- feeds WiFi access point



TTP base station



to Orwell

As seen on TV

Orwell internet service



Demonstration

