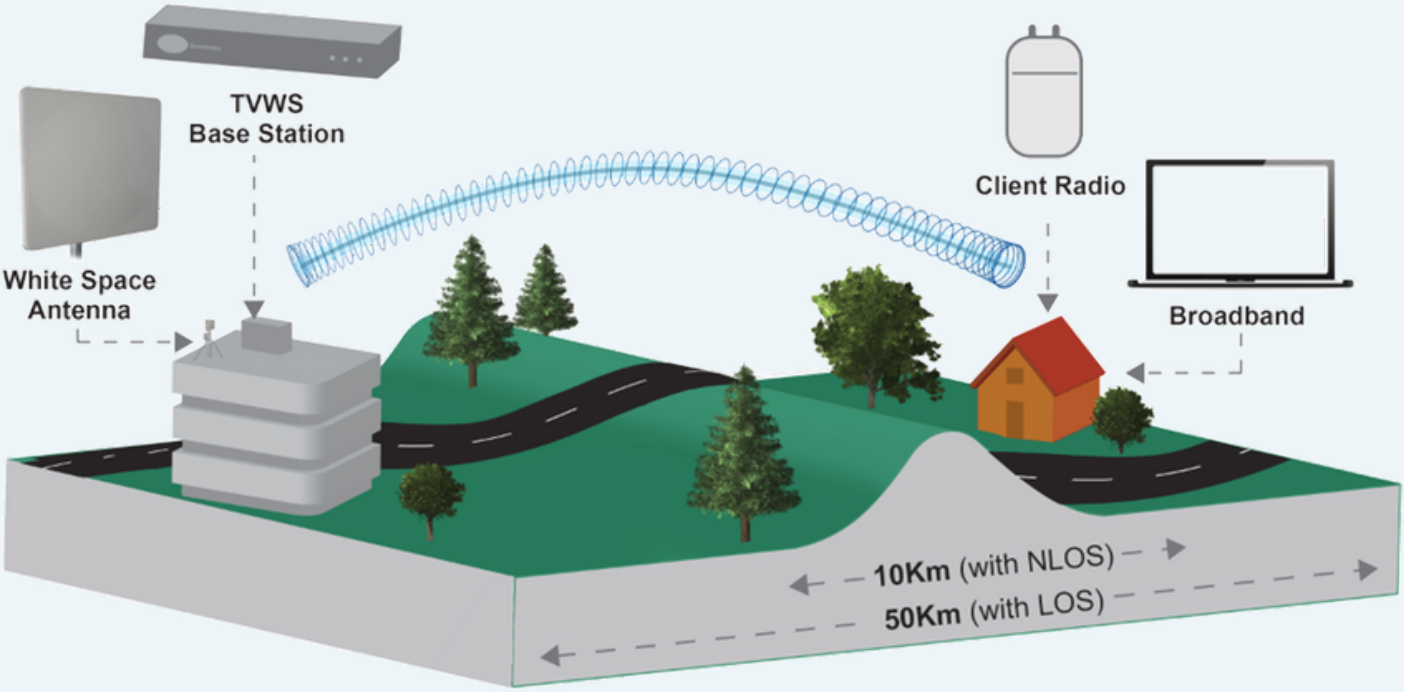
EION ByTES

Solution: TV White Space 470 - 786 MHz
Dynamic Spectrum Allocation - CBRS Alike



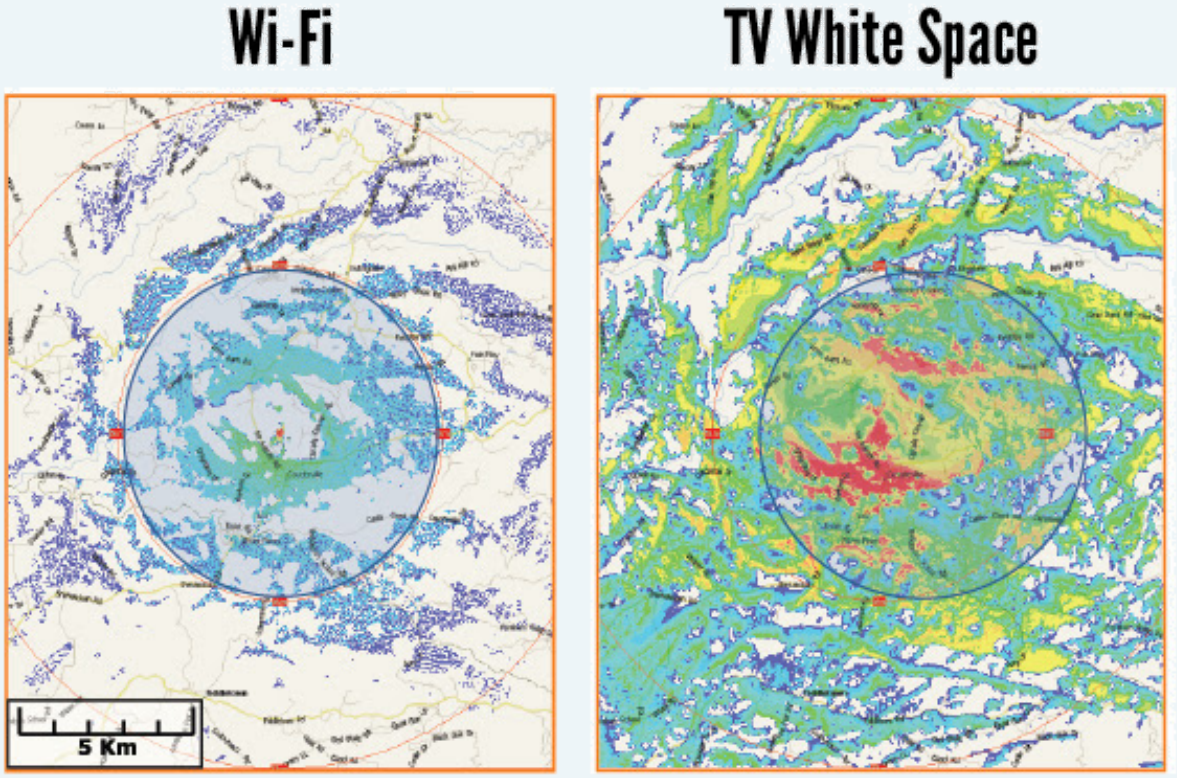
What is "TV White Space - TVWS"?

TV White Space refers to the unused TV channels between the active ones in the VHF and UHF spectrum. These are typically referred to as the “buffer” channels. In the past, these buffers were placed between active TV channels to protect broadcasting interference. It has since been researched and proven that this unused spectrum can be used to provide broadband Internet access while operating harmoniously with surrounding TV channels.

TVWS Physical Characteristics

Depending on the availability of channels in an area, TVWS can offer tens of Mbps per channel over several kilometres. There is potential to increase the bandwidth to offer up to 100 Mbps by combining multiple channels. One of the attractive features of TVWS is that it uses lower frequencies compared to Wi-Fi and mobile networks, thus allowing the signal to travel much greater distances and penetrate permanent obstacles such as buildings and trees, as well as travel around terrain allowing non-line of sight connections.

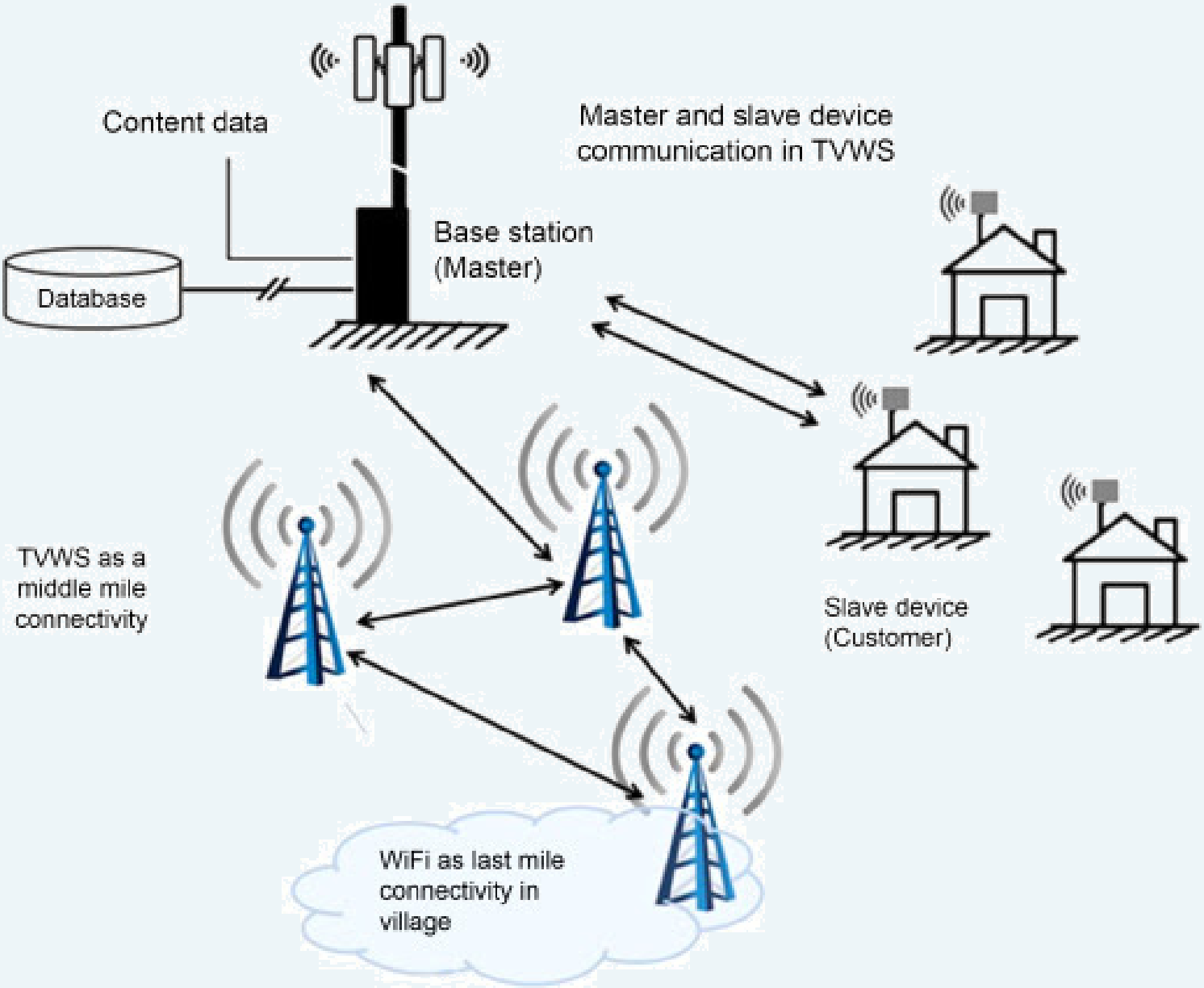
Better Coverage than WiFi



While a traditional Wi-Fi router has a relatively limited range, around 100 meters under perfect conditions, and can be blocked by walls or other environmental barriers, TV White Space technology can cover an expanse of about 10 kilometers in diameter (100 times the distance)! This breakthrough technology was nicknamed “Super Wi-Fi” because of its superior range and ability to penetrate obstacles such as trees, buildings and rough terrain.

Regulation and Operation - Dynamic Spectrum Allocation

In order to transmit on TVWS channels, devices are required to contact an approved TVWS database to check the availability of channels in their area, as illustrated in the diagram below. Devices send their location to the database, and in return, they receive a list of available channels and the power at which they are permitted to transmit on each. Devices are required to check in with the database every 15 minutes to ensure they remain clear of TV broadcasts.



Non-Line-of-Sight (NLOS) Performance

Microwave links require line-of-sight (LOS) between the points being connected. In areas with rugged or forested terrain, the tall towers necessary to provide this line-of-sight connection make microwave an expensive and unfeasible solution. TV White Space technology provides an effective alternative to microwave by utilizing the lower-frequency UHF signals that can penetrate obstacles and cover uneven ground without requiring additional infrastructure.

Interference Free

TVWS networks ensure interference-free operation. Radios implementing TVWS Spectrum are using wideband and frequency-agile– capable of operating in any available channel in the UHF TV band. Integrated spectrum scanning, and our network channel wizard, make it easy to select to best channel for every radio.

Visit our website