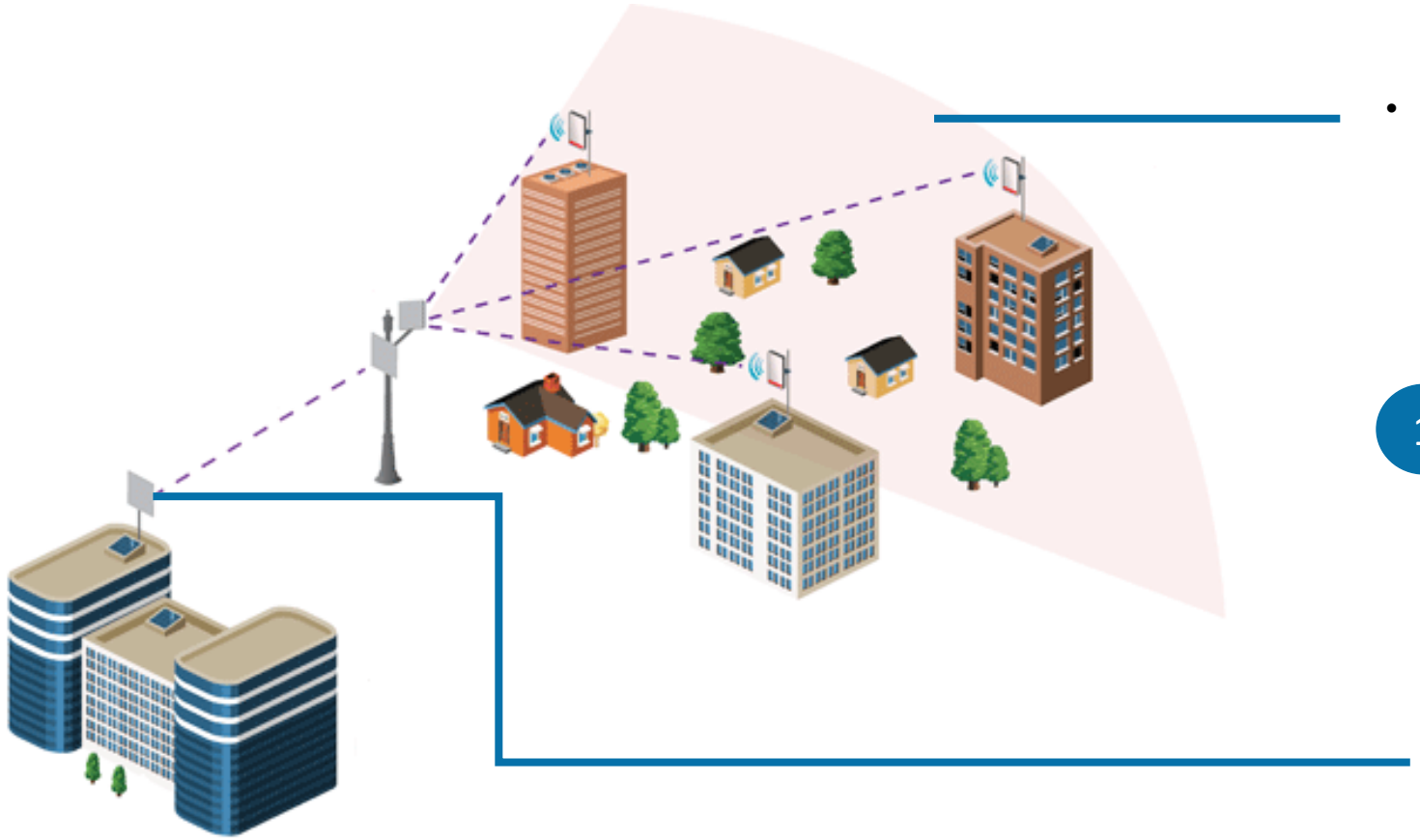
The Future of Connectivity

Fixed Broadband Wireless, TVWS, Wi-Fi 6 and IoT

MiRO WIRELESS IP CONVERGENCE

Wireless Networking VoIP IP Video

5G as a Fixed Wireless Technology



5G Backhaul solutions in Fixed Broadband Wireless to replace/support Fibre

- High data demand and Subscriber Count PtMP Network

Economies of Scale
Cost per Unit

1

- Radio should support wide-band frequencies in order to eliminate the need for sub-band specific SKUs.

- Economic Model – Shared Service to Reduce ARPU

- High frequencies of 24-28GHz, 60GHz (PtMP) and 70/80GHz.

Wi-Fi 6 Spin-Off: Cost Effective PtMP for Residential and SME's

- **Challenges:** Interference, Density, Subscription per Base Station
- **Advantages:** Time to market, Rapid Deployment, ROI for Enterprises, reduced cost per subscriber.

Wi-Fi 6 provides massive MU-MIMO upstream and Downstream – higher capacity and better interference mitigation

2019

802.11g lets consumers stream music at 54Mbps

2003

802.11ac breaks the gigabit per second barrier

2012

802.11b | 802.11g | 802.11n | 802.11ac | Wi-Fi 5 | Wi-Fi 6

1999

802.11b releases, featuring wireless speeds of 11Mbps

2009

802.11n boosts range and throughput for video streaming

2015

802.11 next-gen ac introduced – MU-MIMO

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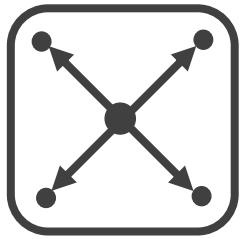
How Wi-Fi 6 will benefit Fixed Broadband Wireless

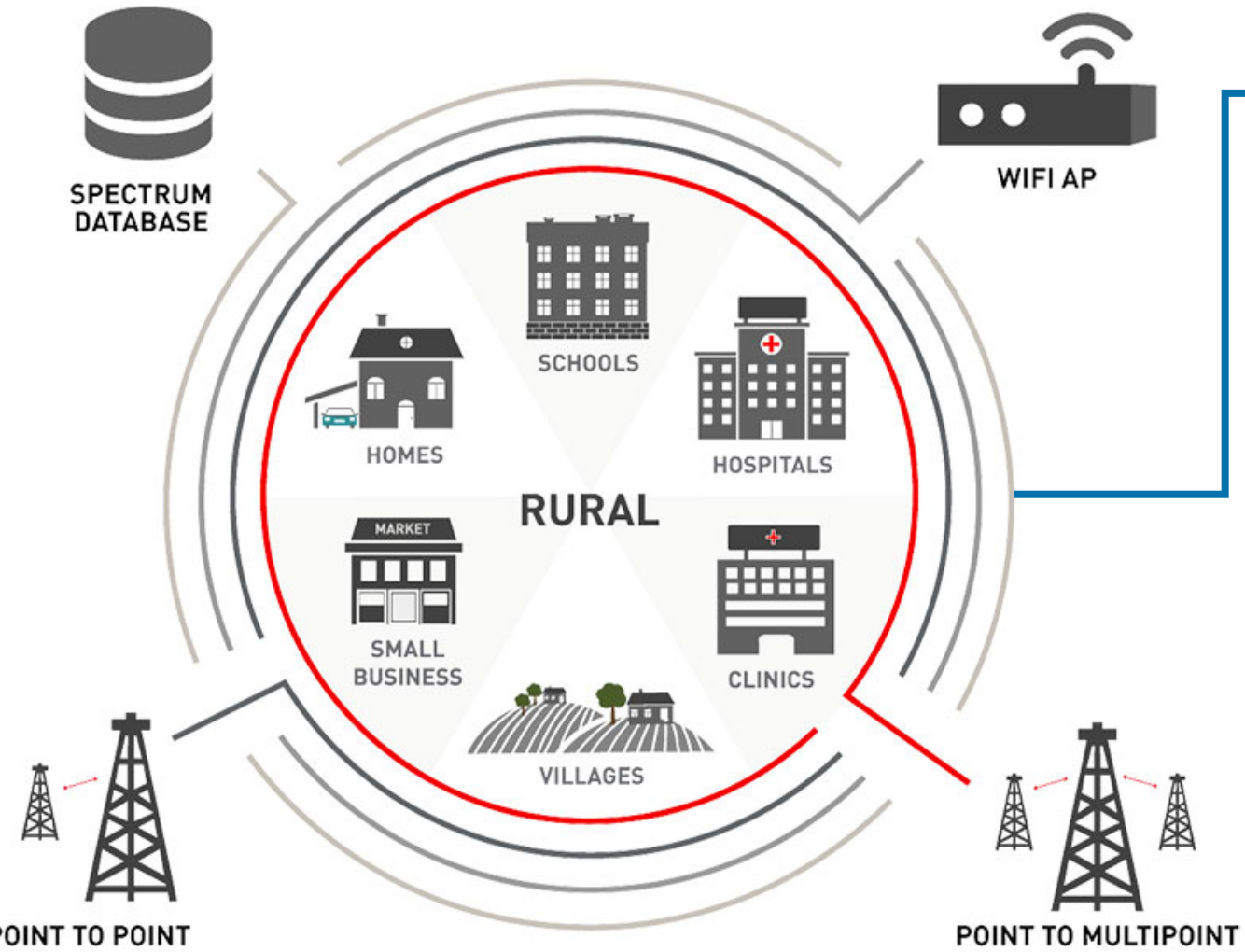
Massive MU-MIMO: Upstream and Downstream	Support for low powered IoT devices on Fixed Wireless	Expectation on Implementation
• Higher Capacity per subscriber • More Subscribers per Access Point • Spectrum Efficiency	• Utilities IoT readers – automatically updates per billing cycle to local municipality • Battery operated devices – less *'wake up'* requests from AP	• By 2024/25 we should see this implemented in Fixed Broadband Wireless Devices



LoRa®

2024/25

Fixed Broadband Wireless and TV Whitespace



TVWS Frequencies in Wireless Applications:

- Lower capacity requirement – especially as a PtMP backhaul solution to remote / rural locations
- Less stringent on clear line of sight as the lower frequency has better propagation
- Greater distances can be covered i.e. up to 50km with current solutions being offered by Vendors

How MiRO will distribute 5G and Wi-Fi 6 solutions