# The Potential of 5G Technology

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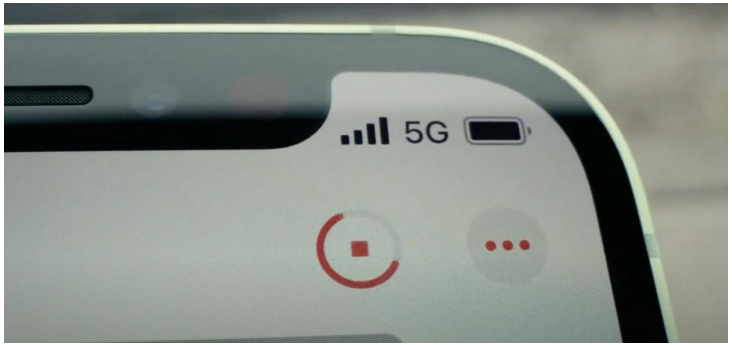
# What is 5G?

- 5G is the newest generation in wireless technology
- Lower latency
- Bigger channels
- More devices

# Timeline For 4G Applications

- First 4G service was opened on December 14th, 2009 in Scandinavia
- In December of 2010, Verizon launched first 4G LTE network in the US



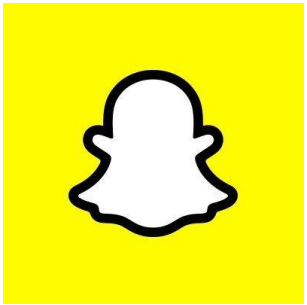
# 4G Technology

- Prior to 4G, there was 3G
  - Text, internet,  and images
- “There’s an app for that”
- Due to 4G, social media apps are accessible wherever and whenever.

# 4G Applications

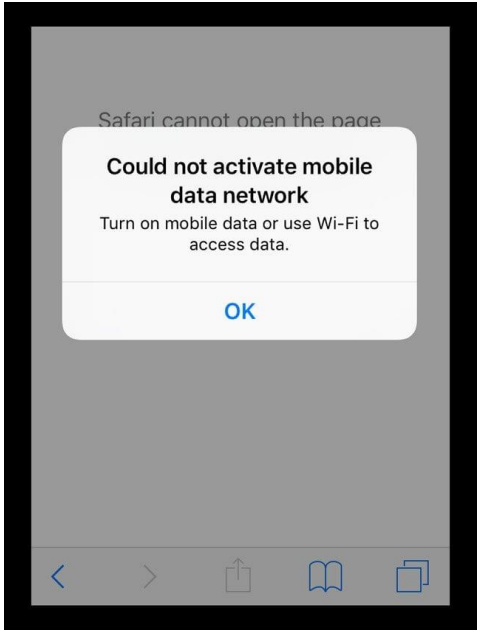
- Uber
- Snapchat
- Instagram
- Facetime

Uber



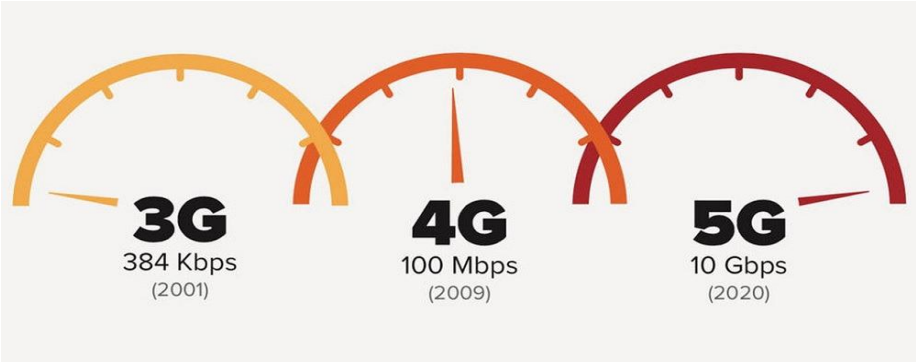
# Downside of 4G

- International travel more challenging with 4G
- Spread of misinformation



# Transitioning from 4G to 5G

- 5G technology was introduced in Chicago and Minneapolis
- iPhone 12
- Should start seeing applications in the next few years

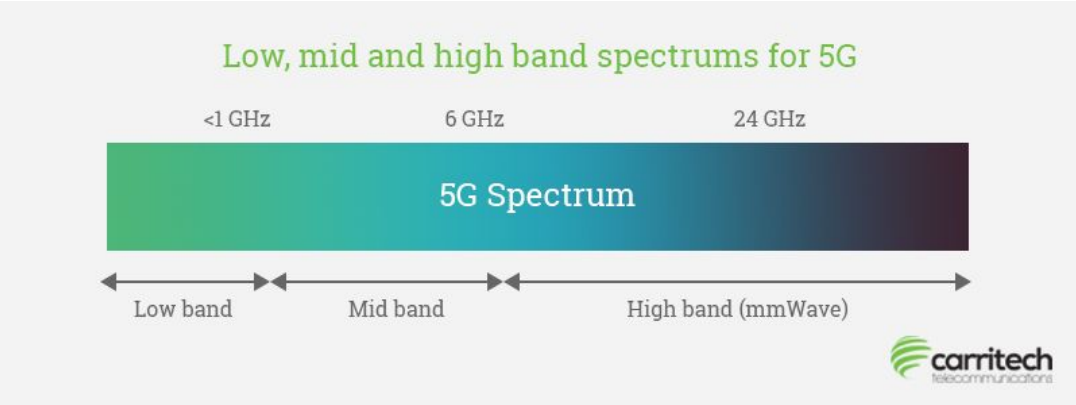


# The 5G network

- “High band”, or short-range airwaves which aren’t compatible with 4G technology
- Low-Band
- Mid-Band
- High-Band

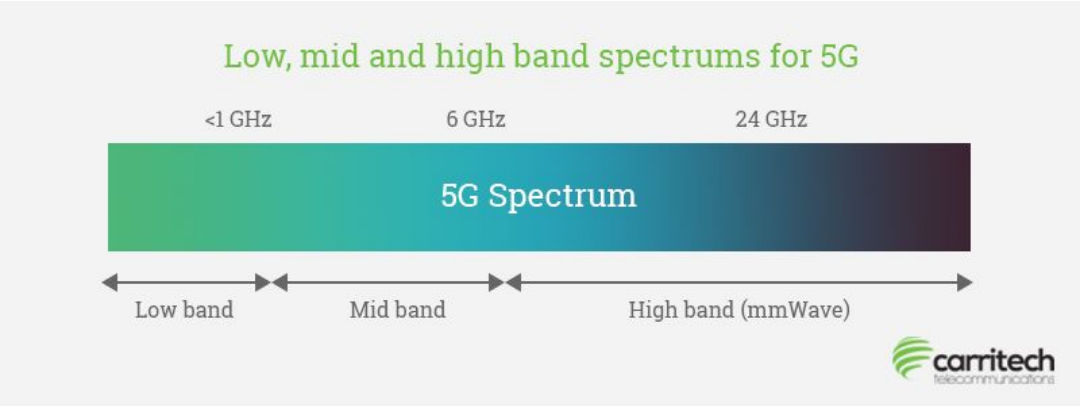
# Low-band 5G

- Most similar to 4G networks



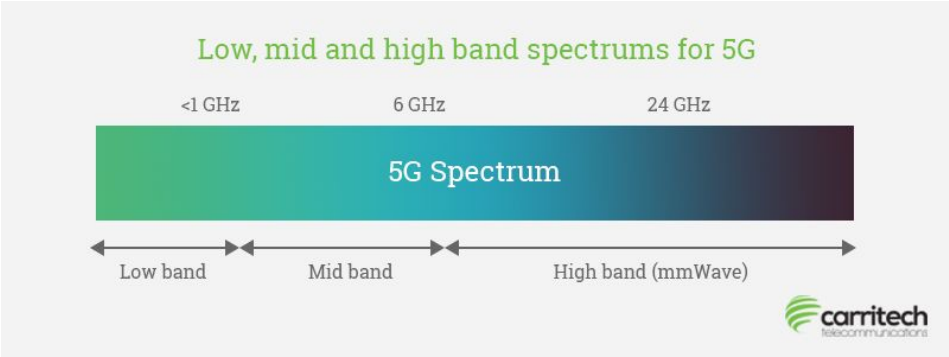
# Mid-Band 5G

- Mid-Band 5G is carrying most of the 5G cellular frequencies



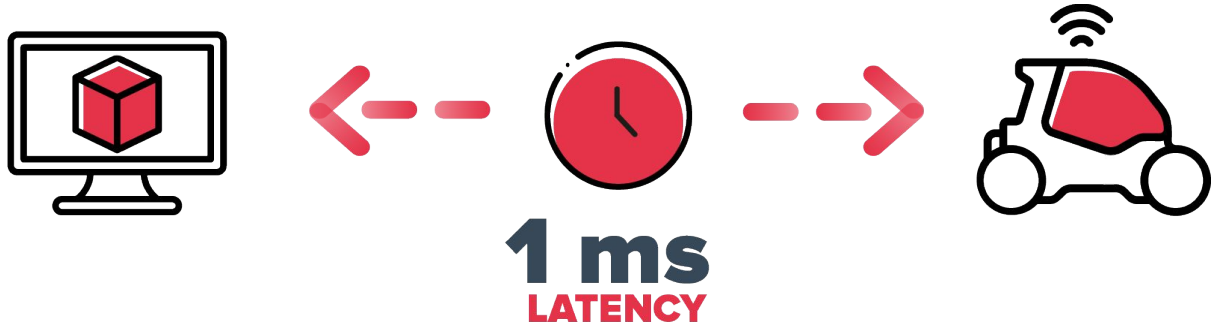
# High-Band 5G

- “Millimeter-wave”
- High-Band 5G would be the first consumer application to make use of these airwaves
- With the maximum distance being around 800ft away from a tower
- these frequencies are going to be the hardest for companies like Verizon and AT&T to get into their customers' hands



# Advantages of 5G

- Lower Latency
- Greater Number of Connected Devices

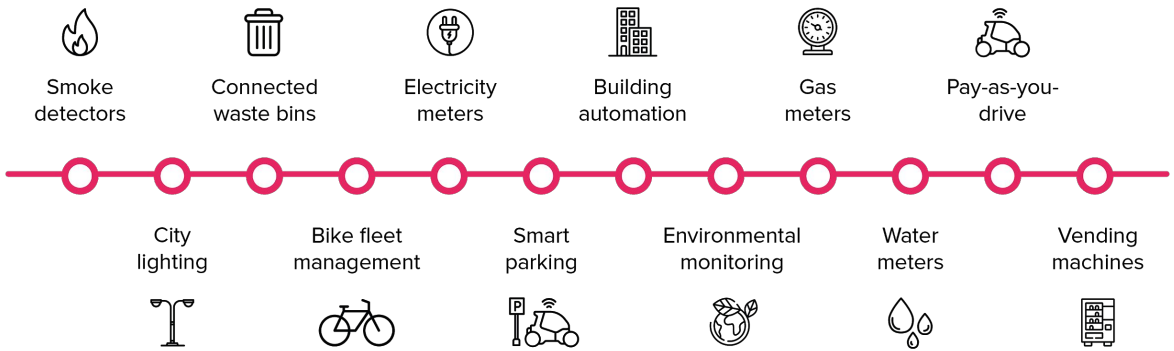


# Disadvantages of 5G

- More expensive subscription cost
- Uneven coverage
- Requires more battery power
- Only few will have access to high-band 5G

# Smart Cities

- Use IoT (internet of things)
  - to collect real time data to better understand how demand patterns are changing, and respond with faster and lower-cost solutions.
- 75 billion connected devices
- Real time data transfer
- Air quality, energy use, traffic patterns



# Autonomous Vehicles

- Allows autonomous vehicles to communicate with each other in real time
- 5G network to be installed on all major freeways by 2025

# Augmented Reality

- VR and AR require increase in wireless capacity
- Low latency necessary for best real-time experience in both AR/VR
- VR/AR gaming industry will take off due to the new opportunities presented by 5G

# Sources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